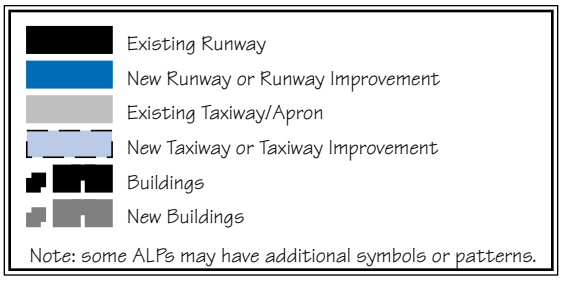
Appendix D

New Runway & Runway Extension Construction

Appendix D contains current airport diagrams for those airports among the top 100 airports[1] that are considering or have plans for the construction of new runways or extensions to existing runways. The airport diagrams show simplified drawings of the existing airports, with proposed runway and runway extension projects indicated in blue. Airport layouts for the remainder of the top 100 airports are contained in Appendix E.

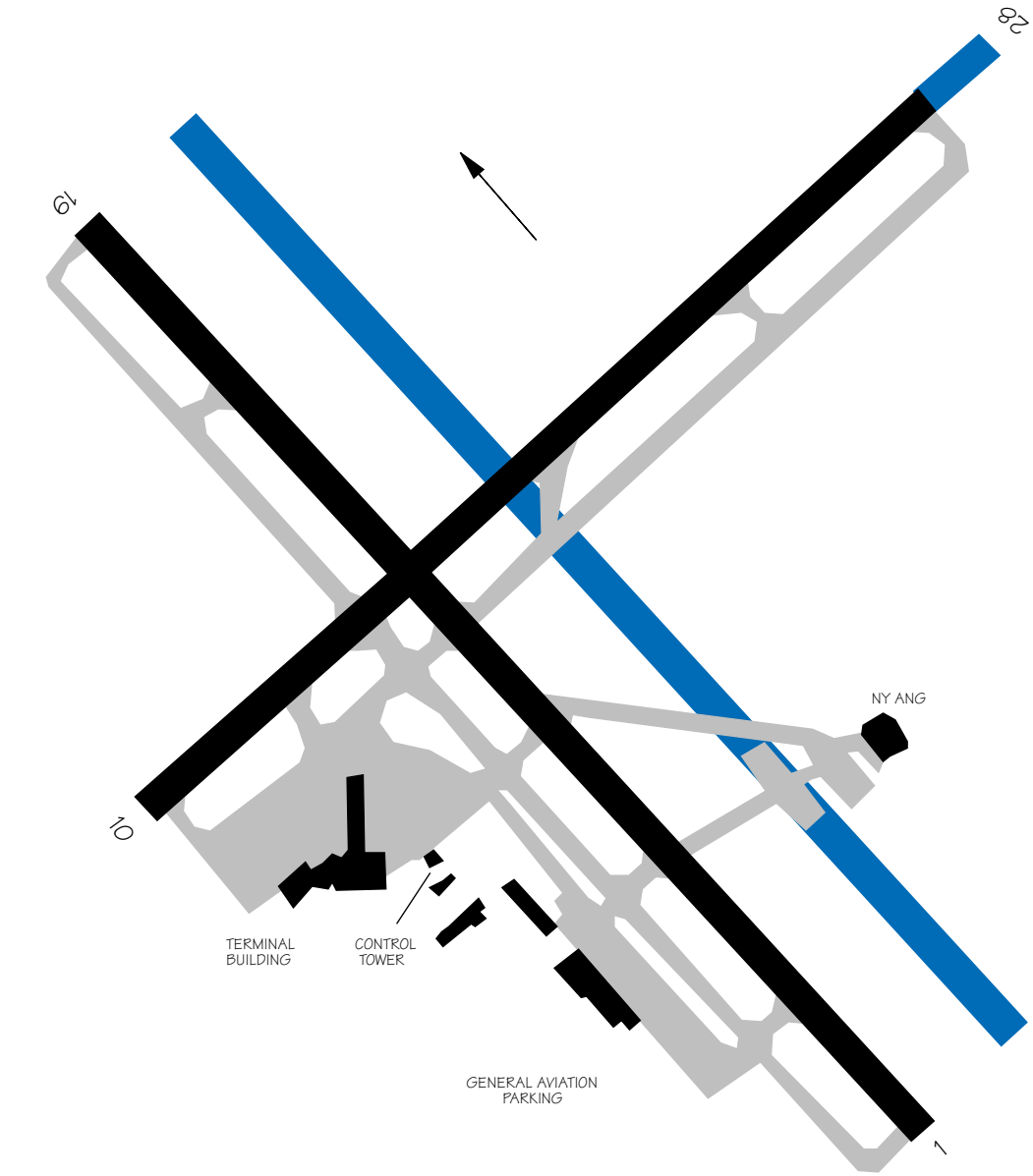
Legend



1. Based on 1994 passenger enplanements (see Appendix A, Table A-1).

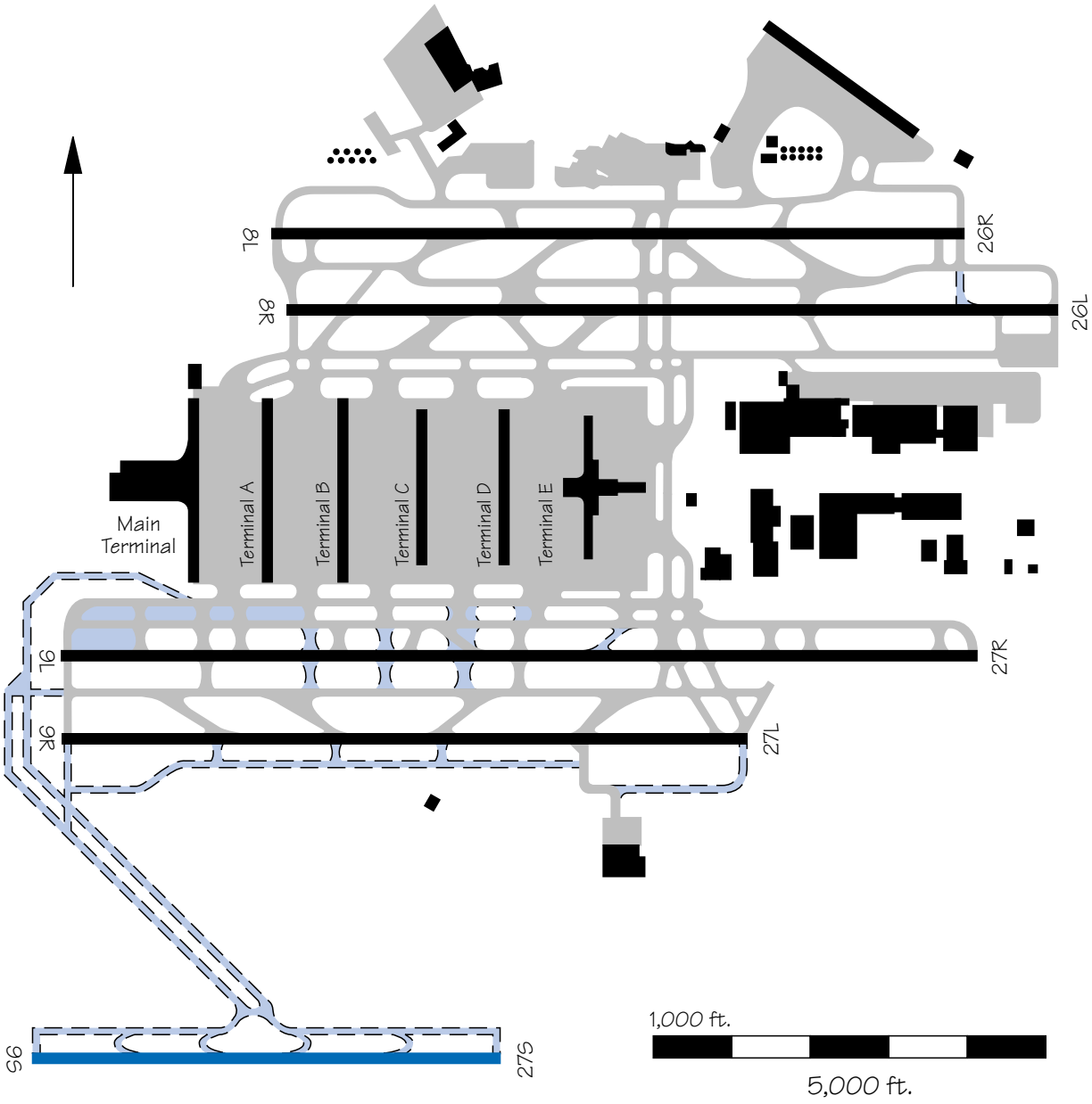
ALB — Albany County Airport

Construction of an extension to Runway 10/28 is planned. The estimated cost of construction is $5.8 million. A new parallel Runway 1R/19L is also planned. The estimated cost is $7.5 million.



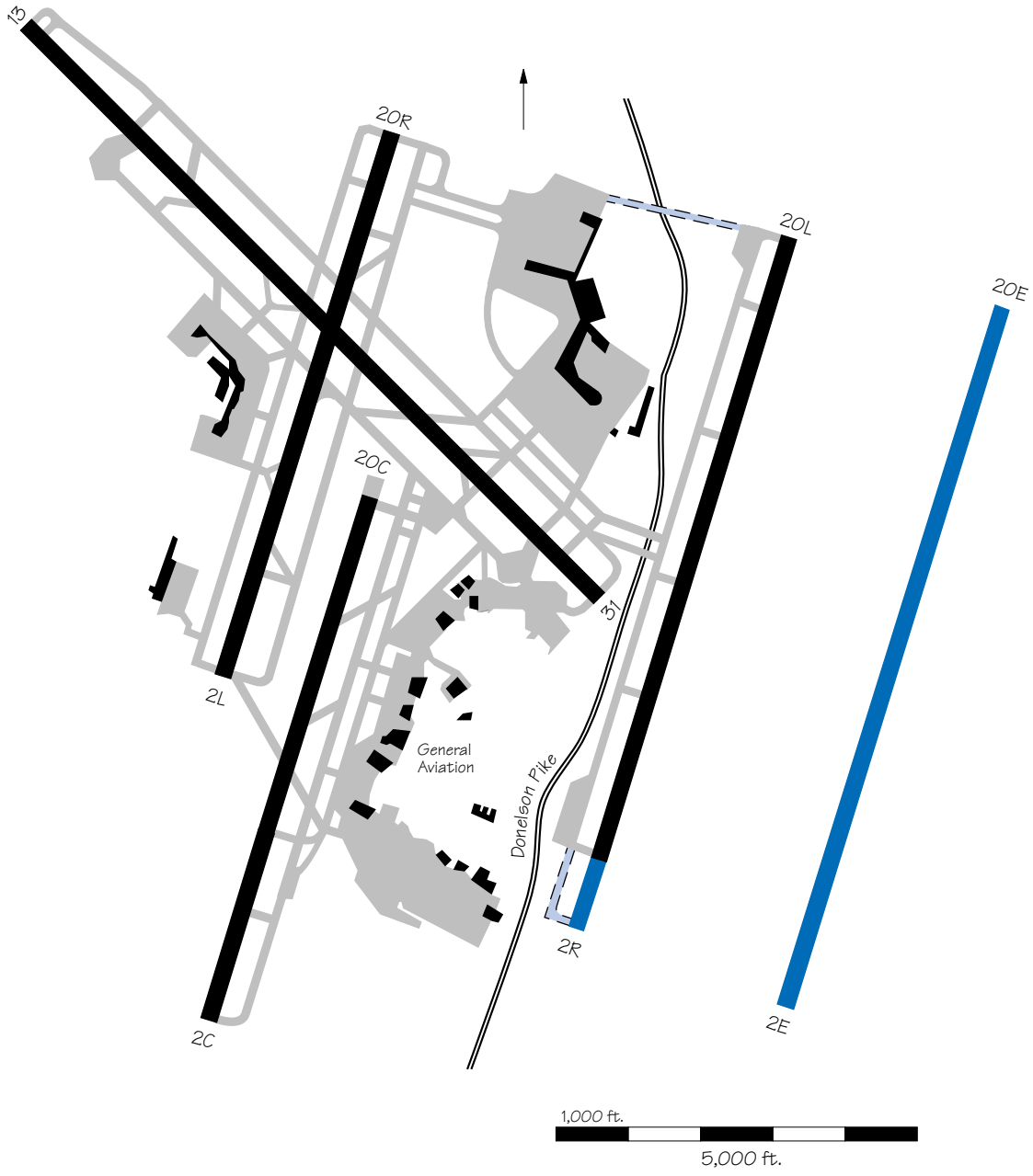
ATL — Hartsfield Atlanta International Airport

A fifth parallel commuter runway, 6,000 feet long and approximately 4,200 feet south of Runway 9R/27L, is being planned. The runway will permit triple independent IFR approaches using the PRM. The total estimated cost is $418 million. The estimated operational date is 1999.



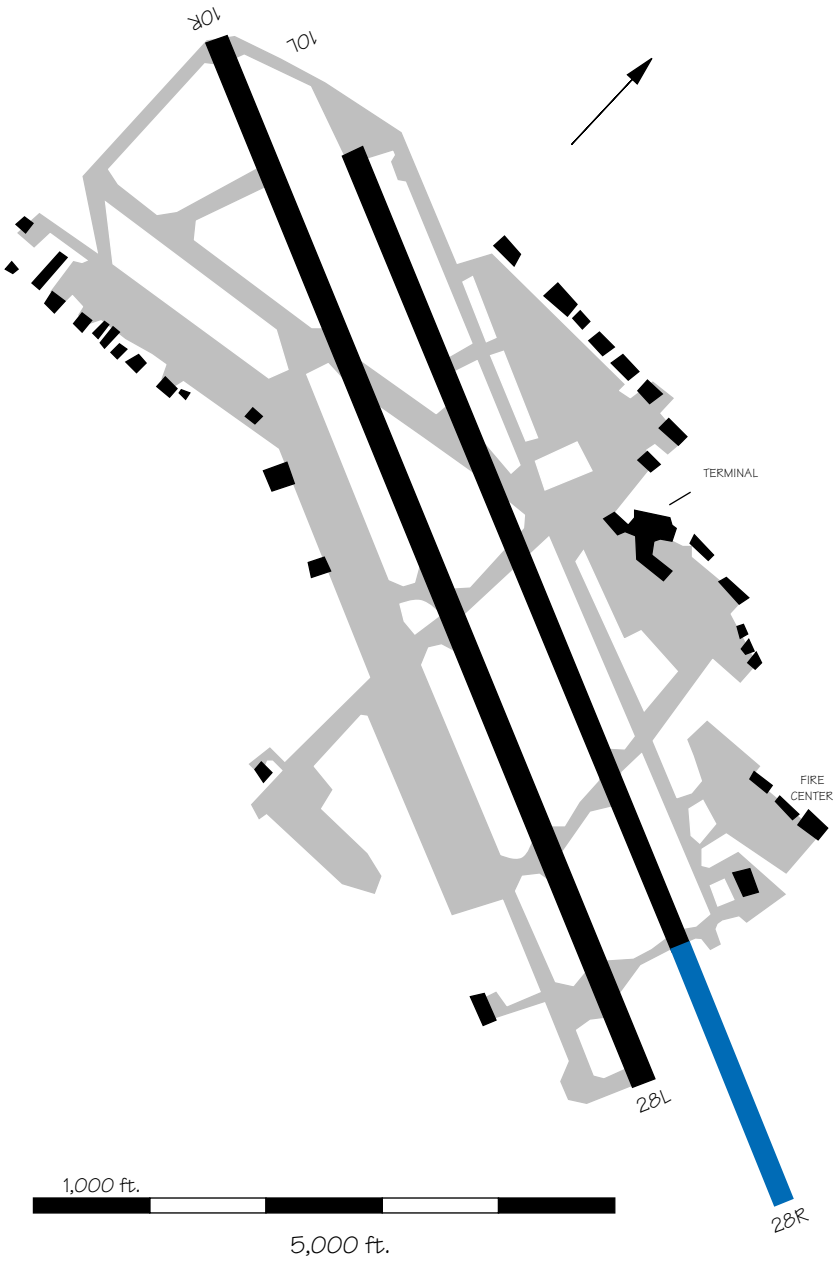
BNA — Nashville International Airport

A new Runway 2E/20E is planned for the future between 1,500 and 3,500 feet from Runway 2R/20L. In addition, an extension to Runway 2R/20L is planned. It is expected to be completed by 2000, at an estimated cost of $38.6 million.



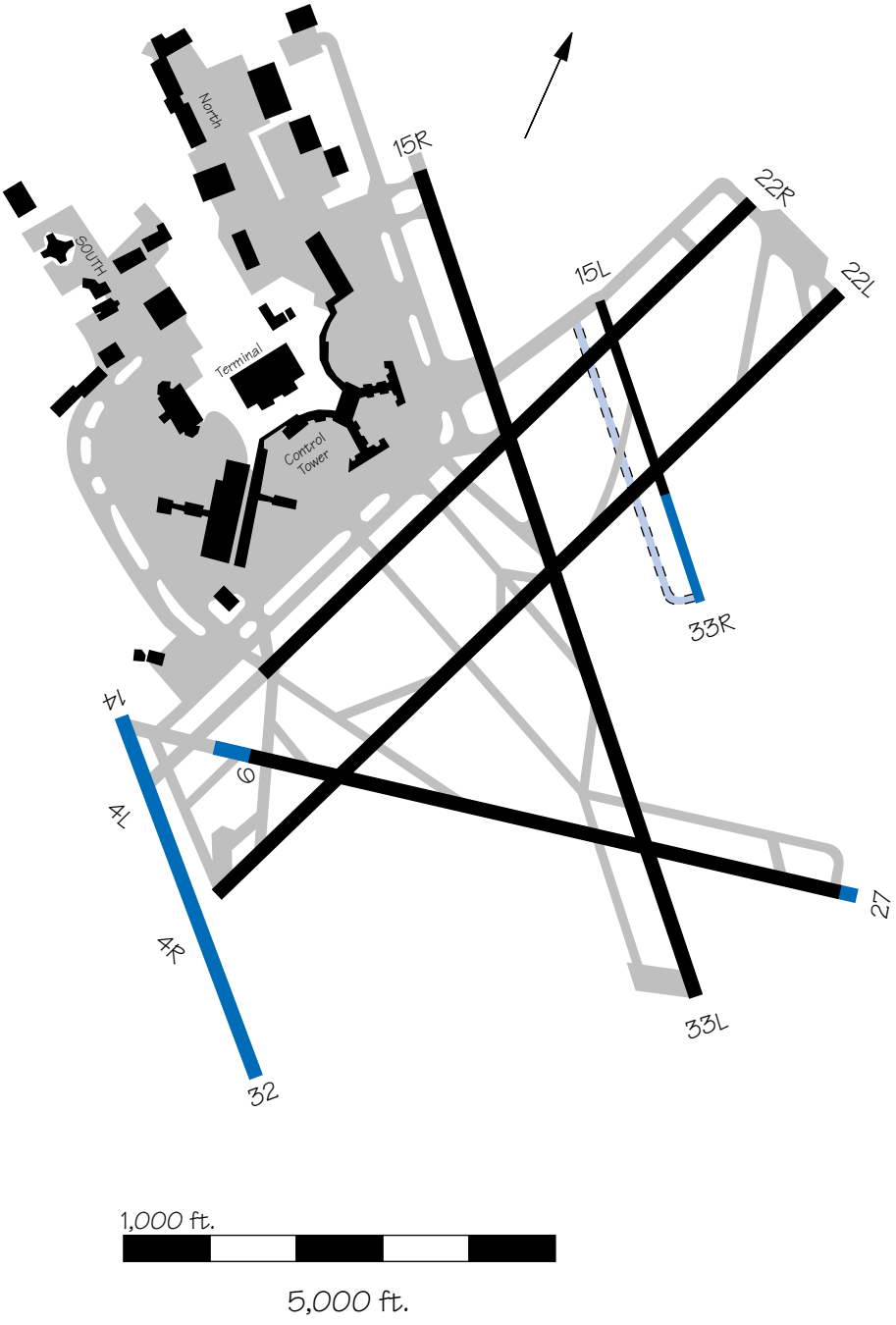
BOI — Boise Air Terminal

A 2,300 foot extension to the east end of Runway 10L/28R in planned. It is expected to be operational by 1998, at a cost of $8 million.



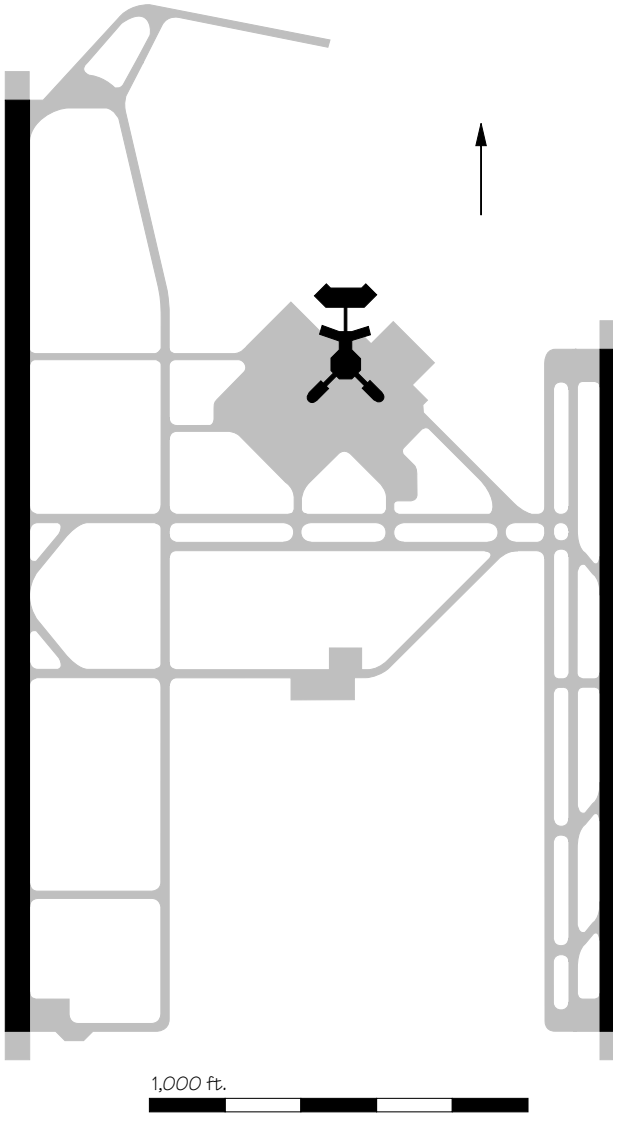
BOS — Boston Logan International Airport

A new uni-directional commuter runway (Runway 14/32) 4,300 feet from Runway 15R/33L, an extension of Runway 15L/33R to 3,500 feet, and a 400-foot extension of Runway 9 are being studied. An Environmental Impact Study is currently in progress for the new runway.



BSM — Bergstrom AFB (new Austin)

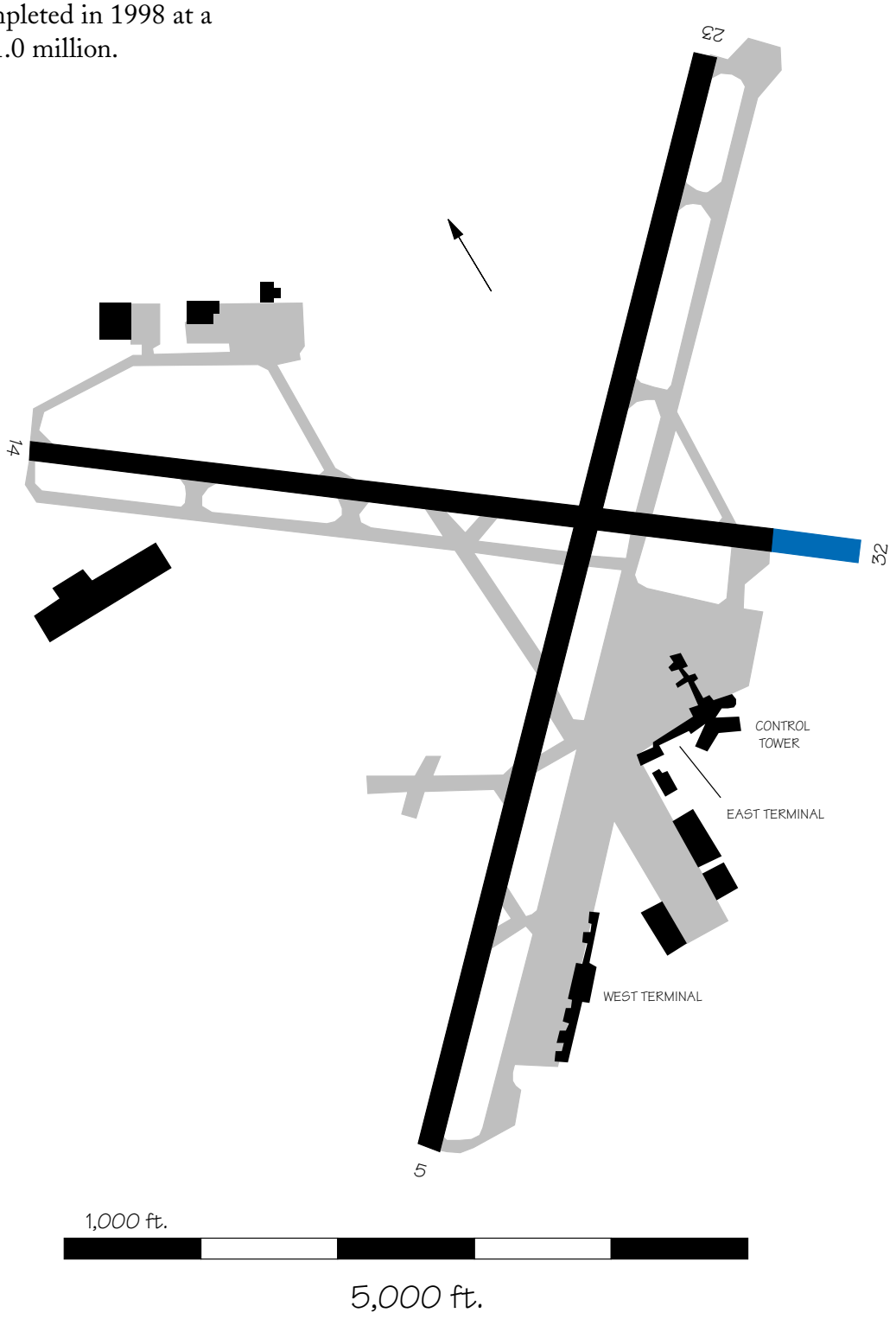
The community has approved the sale of revenue bonds for the development of a new airport. The present Robert Mueller Airport cannot be expanded. Bergstrom Air Force Base (AFB) was transferred to the city on October 1, 1993, and the city is now planning to construct a new parallel runway and relocate all commercial activity there in 1998. The total estimated project cost is $520 million. The city has an Airport Master Plan under development. Environmental studies are in progress by the Air Force and the city. Since Robert Mueller Airport will close upon completion of the new airport, no capacity enhancements are planned at Mueller. Some of the construction projects include a new Runway 17L/35R and associated taxiways, new midfield cross taxiways, a new air cargo apron, and renovation of Runway 17R/35L to bring it up to FAA CAT III standards.



Bergstrom Air Force Base Conversion
Opening Day Layout Plan
as of 1-31-95

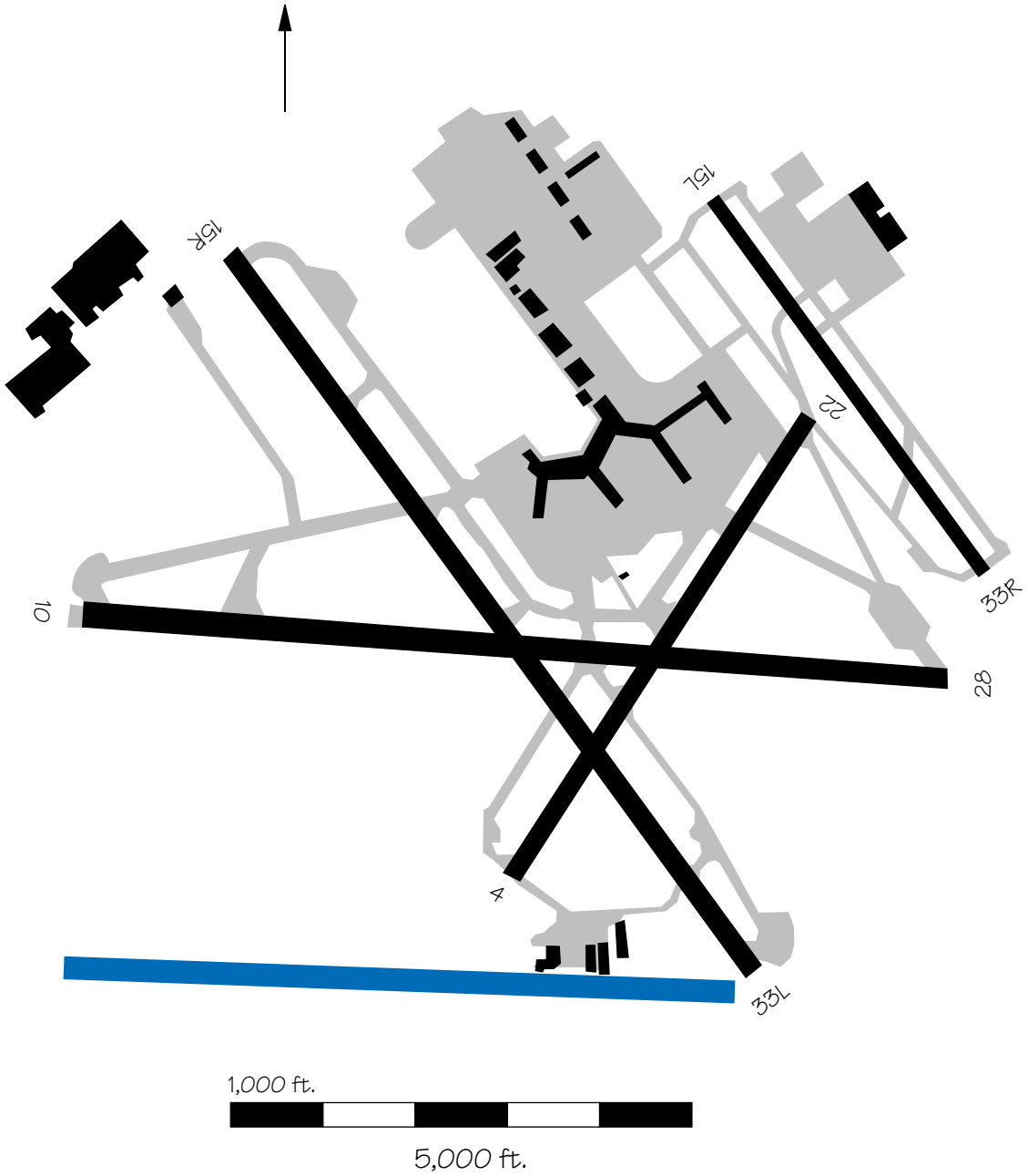
BUF — Greater Buffalo International Airport

Construction is expected to start in 1996 on a extension to Runway 14/32, along with relocating the runway threshold. The project is scheduled to be completed in 1998 at a cost of $1.0 million.



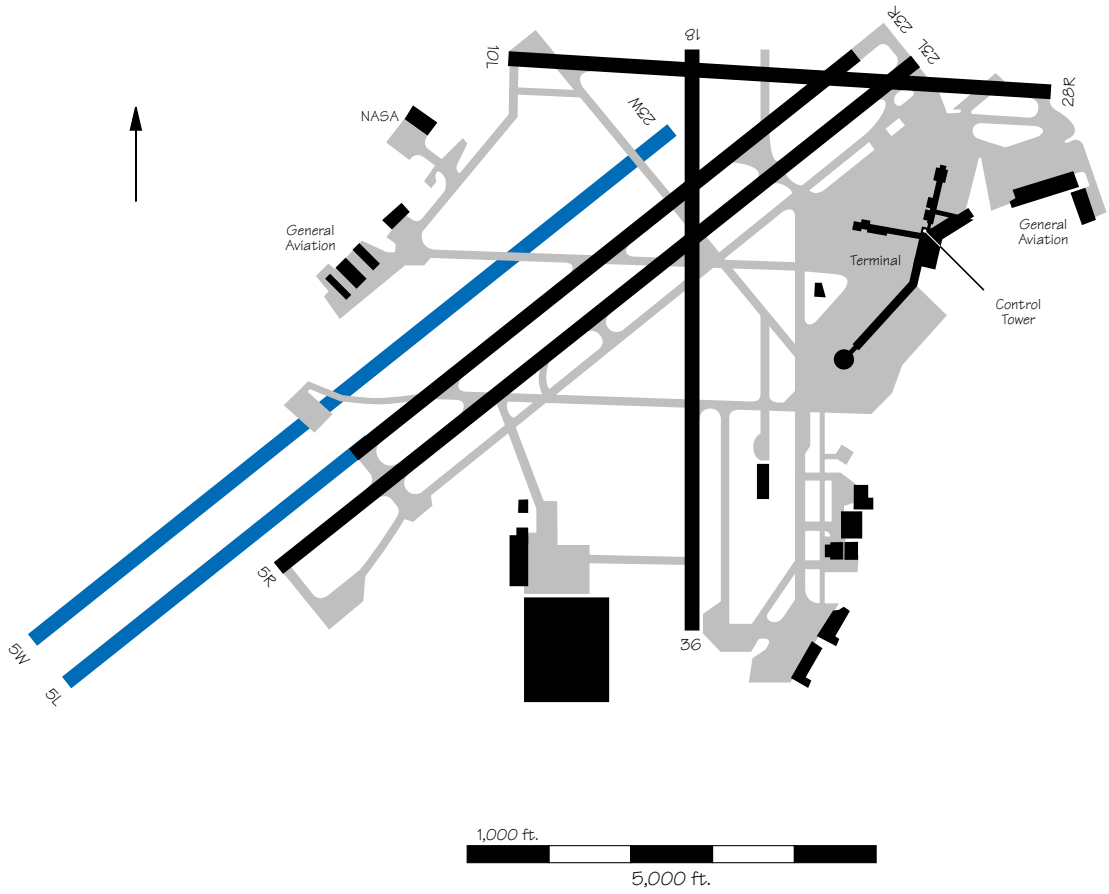
BWI — Baltimore-Washington International Airport

A new 7,800-foot runway, Runway 10R/28L, is planned to be constructed by 2003, 3,500 feet south of Runway 10/28. When Runway 10R/28L is constructed, Runway 4/22 will be converted to a taxiway.



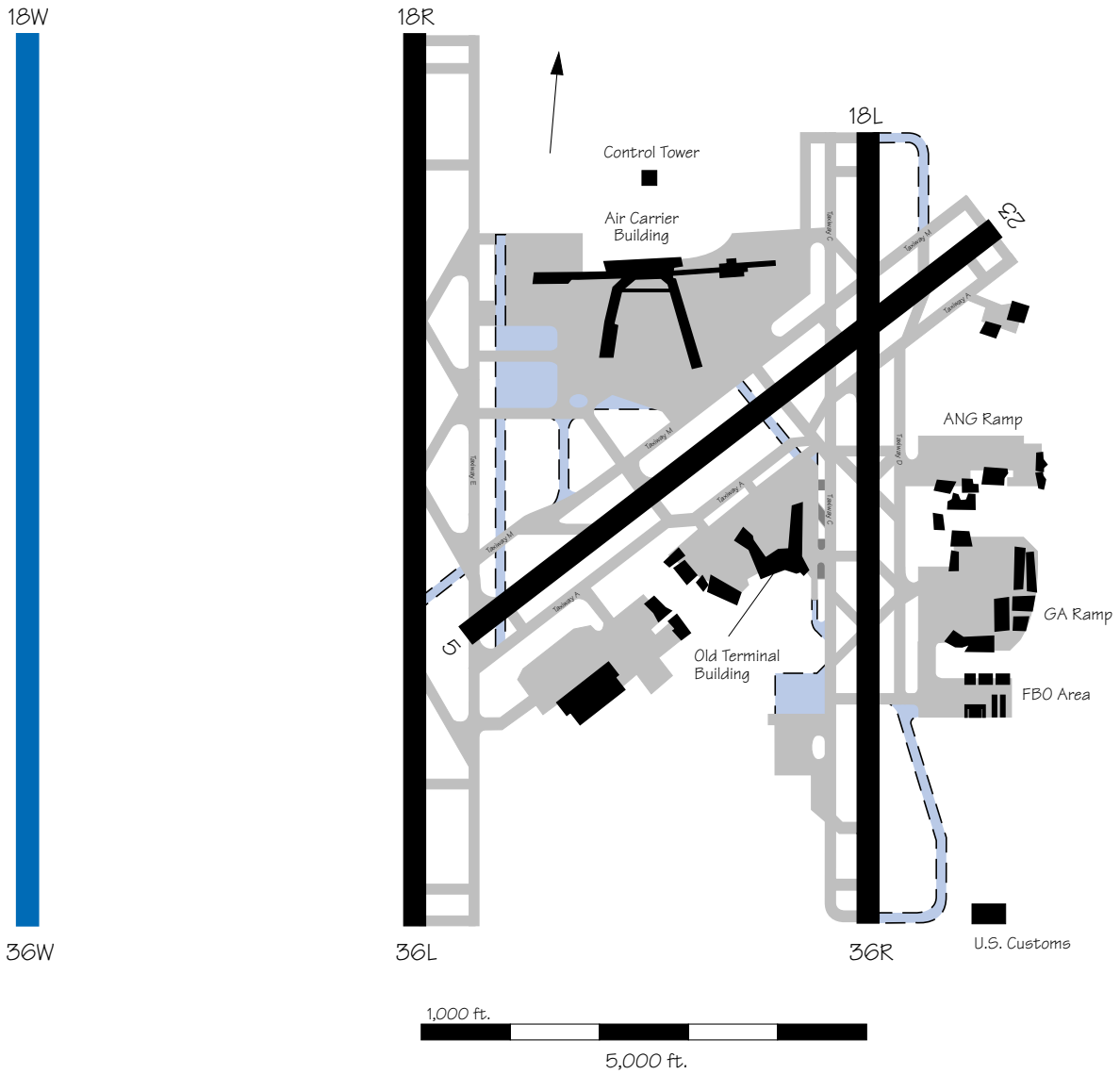
CLE — Cleveland Hopkins International Airport

A Master Plan Update is currently being coordinated. The preliminary Airport Layout Plan shows construction of a new Runway 5W/23W that would be 9,600 feet long and 150 feet wide. Construction is expected to be completed in 1999 at a cost of $180 million. Also included in the development plan is an extension of the existing Runway 5L/23R from 7,095 feet to 12,000 feet at an estimated cost of $40 million and conversion of the existing Runway 5R/23L to a parallel taxiway at a cost of $3 million. All of this work is scheduled for completion in 2000.



CLT — Charlotte/Douglas International Airport

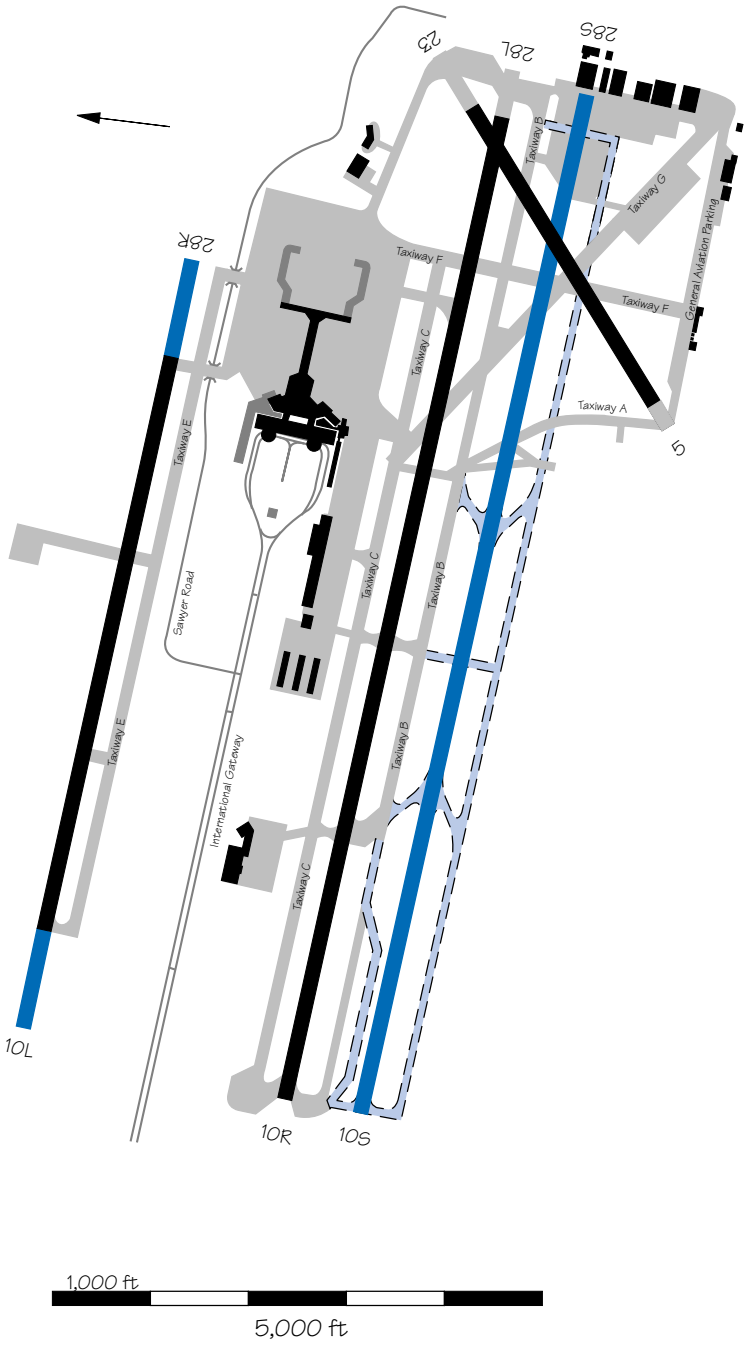
Plans to open a third parallel 8,000-foot runway west of Runway 18R/36L that would permit triple IFR approaches (dependent or independent, based on final separation) is being considered. An Environmental Impact Study is underway. While construction has not begun, it is estimated to be completed in 1999, with an estimated cost of $70 million.



CMH — Port Columbus International Airport

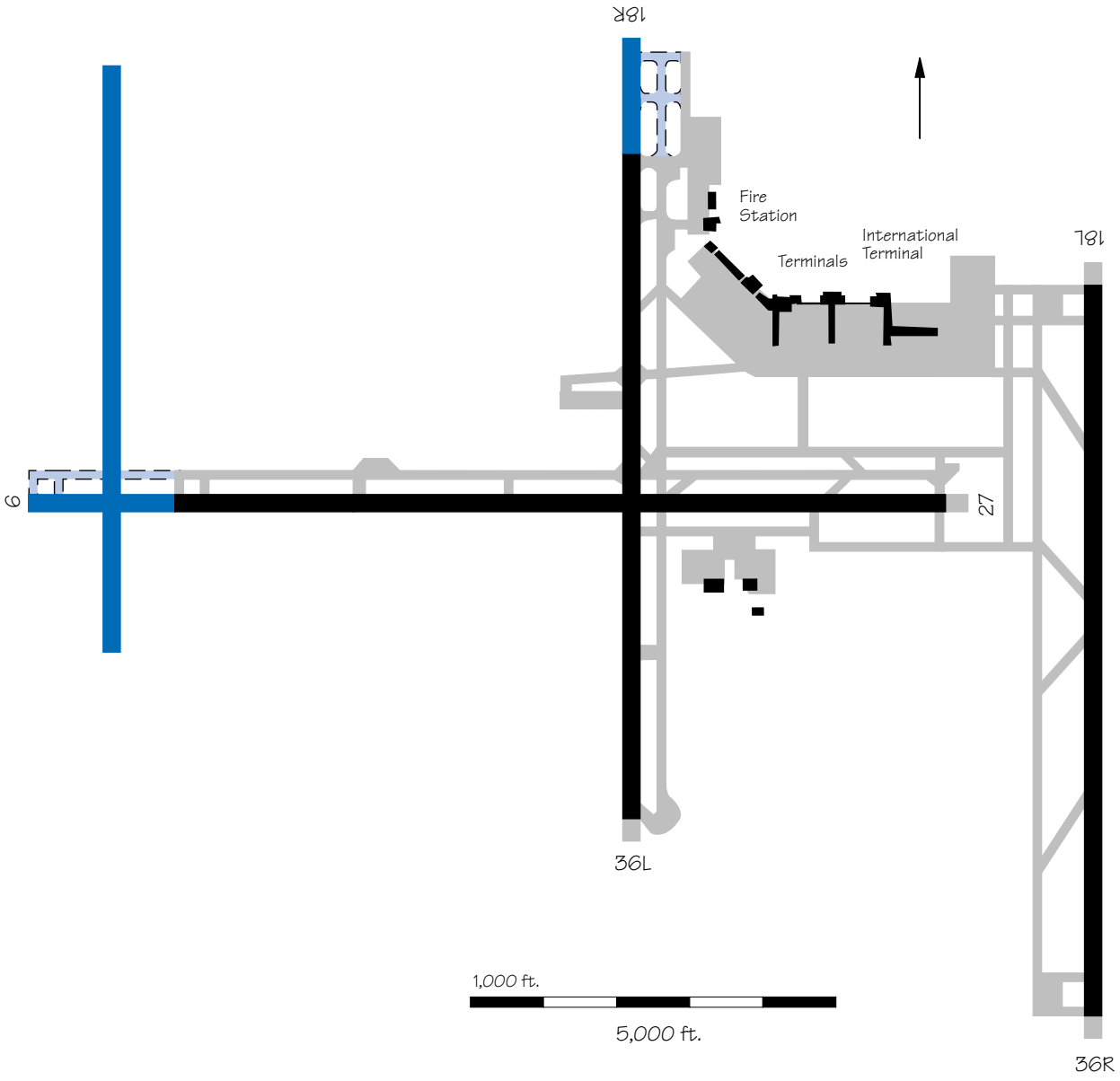
The Airport Layout Plan has been coordinated to show a third parallel Runway 10S/28S constructed 800 feet south of the existing Runway 10R/28L. This runway will be 10,250 feet long and 150 feet wide, with two high speed exits, a 90 degree exit at the center, and a 90 degree bypass taxiway at each end. This would provide a 3,650 foot separation between the proposed Runway 10S/28S and the existing Runway 10L/28R. With the installation of the Precision Runway Monitor (PRM), the existing Runway 10L/28R and the proposed Runway 10S/28S could be used for arrival air traffic. Runway 10R/28L would be used as the departure runway.

The exiting Runway 28R is being extended 1,000 feet and will be completed in 1996. A 1,000 foot extension to Runway 10L is proposed for 1997. Upon competion, Runway 10L/28R will be 8,000 feet long and 150 fet wide.



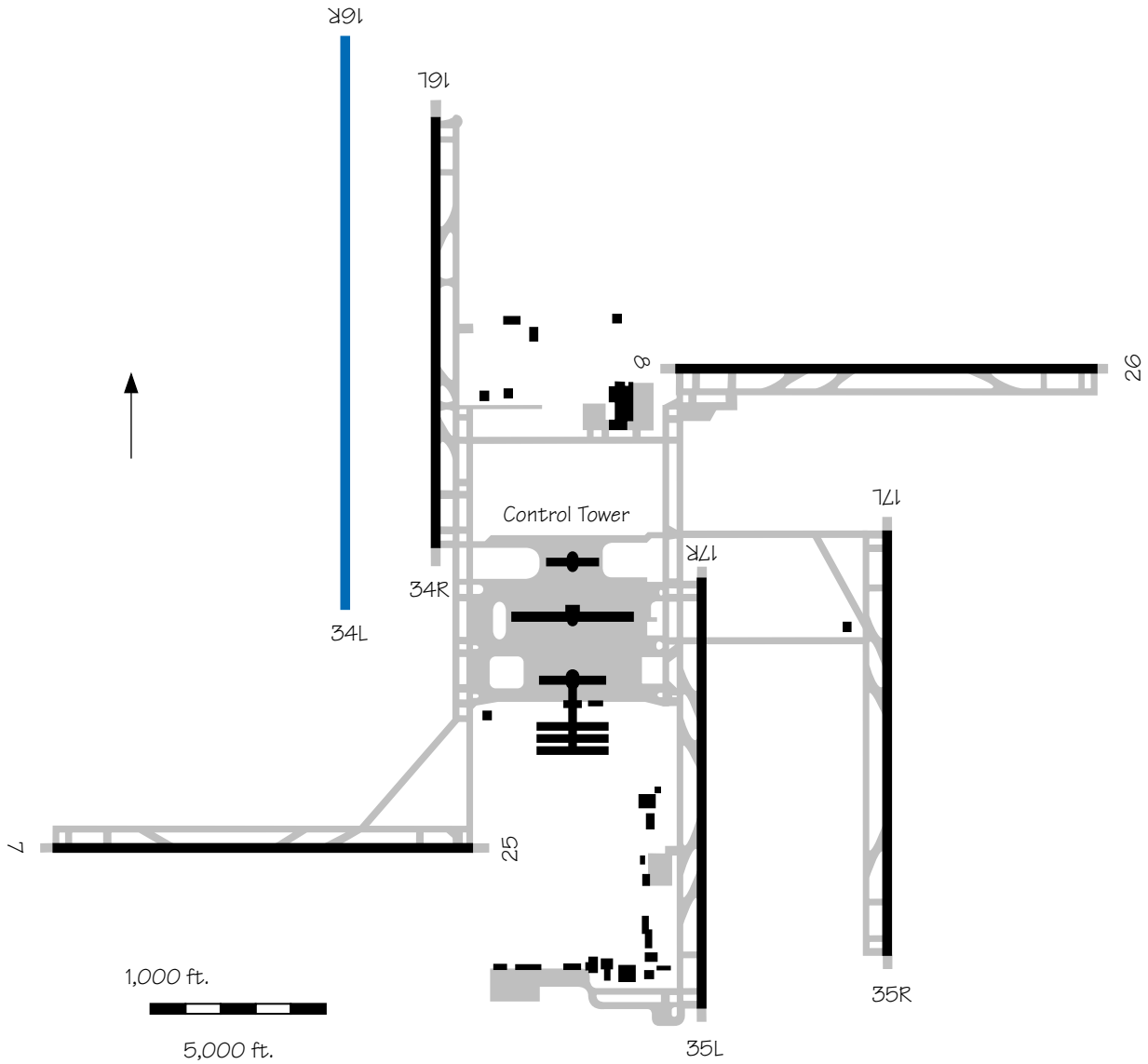
CVG — Greater Cincinnati International Airport

An extension of Runway 18R/36L is under construction. It will allow aircraft to land on Runway 18R and hold short of Runway 27 and will add capacity during noise abatement hours. The estimated cost of construction is $11 million, and the estimated operational date is 1996. The extension of Runway 9/27 was completed in 1995. An additional 2,000 ft. extension is planned for after 2000, with an estimated cost of $30 million. A third parallel runway is planned for after the year 2000, west of the existing parallels. Estimated cost for the new runway is $232.7 million.



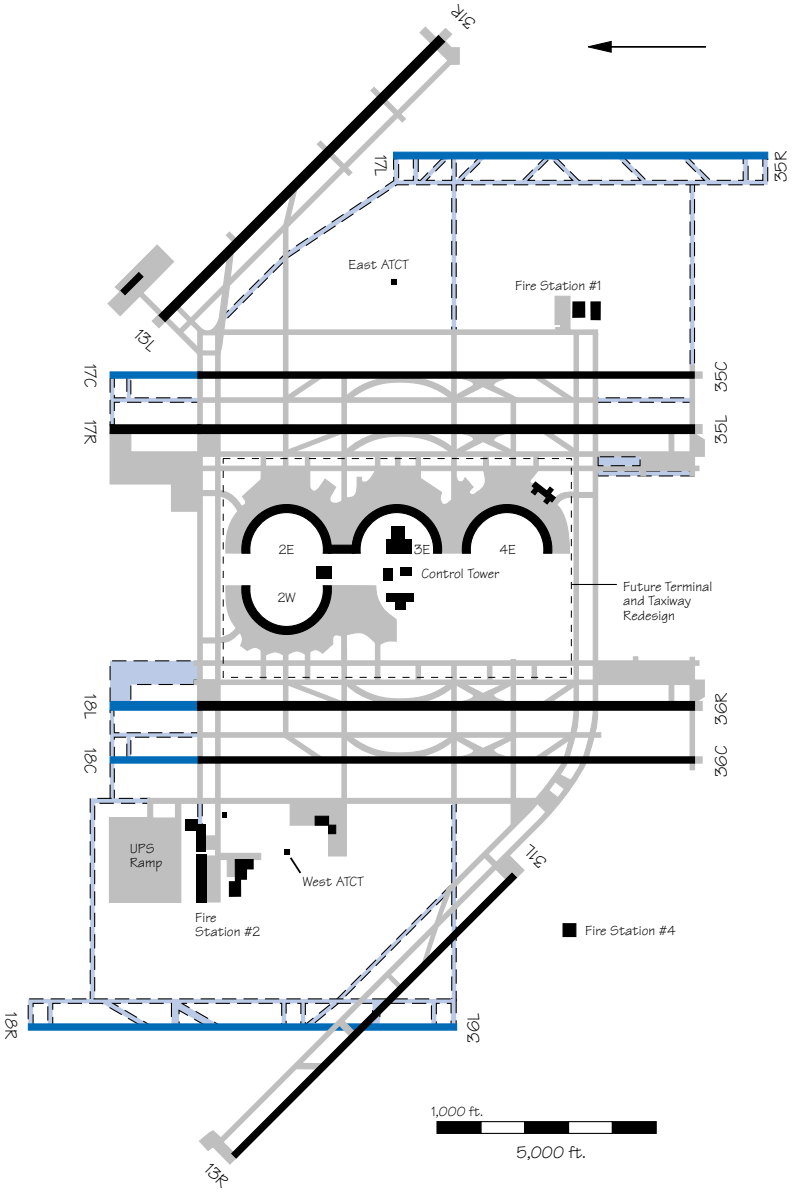
DEN — Denver International Airport

Runway 16R/34L is the last of the six original runways to be built at the new airport. It will be separated 2,600 feet from Runway 16L/34R, and be 16,000 feet in length. The runway is expected to be completed in 2000, at an estimated cost of $75 million.



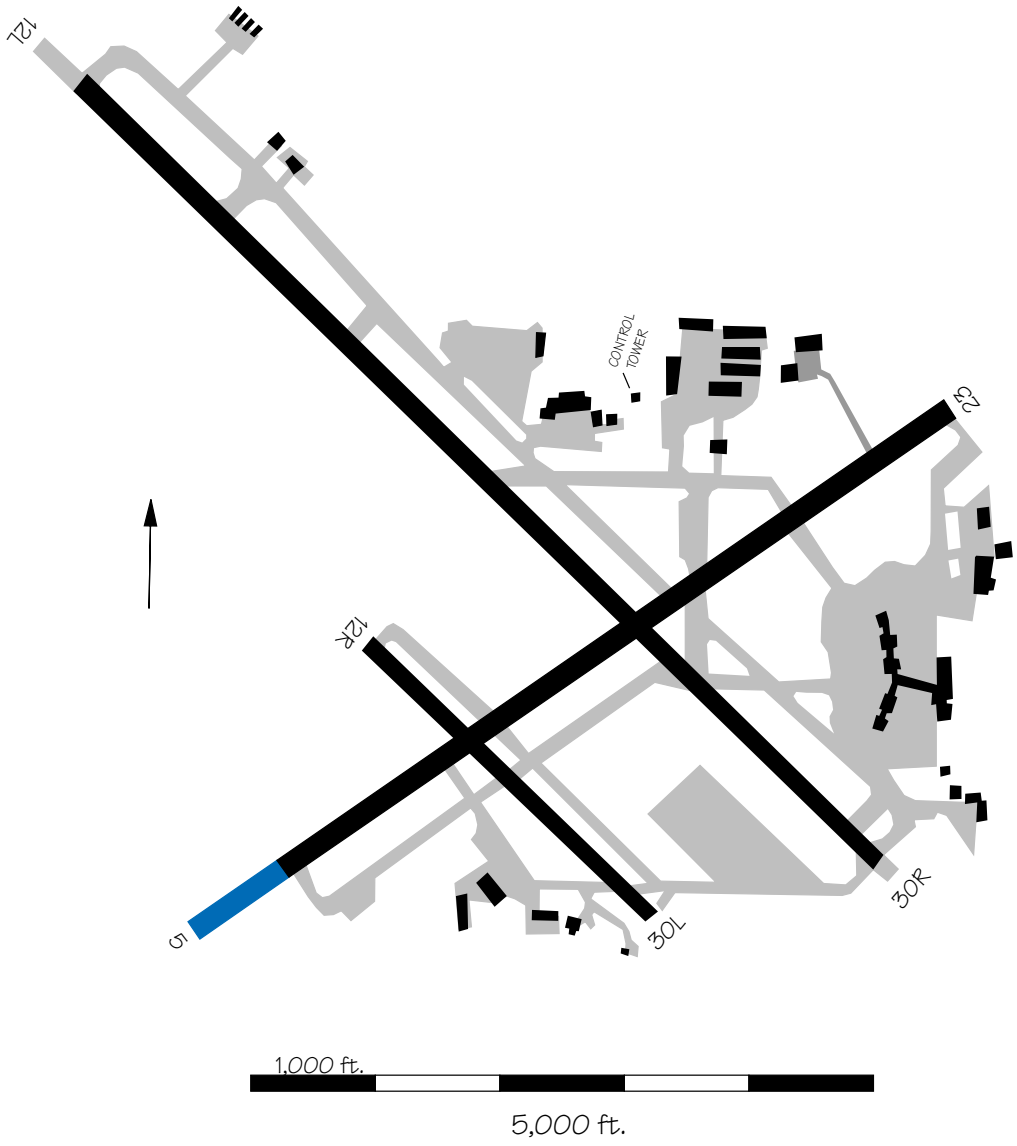
DFW — Dallas-Fort Worth International Airport

Proposed 2,000-foot extensions to all of the north/south parallel runways will provide an overall length of 13,400 feet for each. The estimated cost of each extension is $25 million. The extension of Runway 17R/35L has been completed and was operational September 16, 1993. Also planned are two more parallel runways, Runway 17L/35R and Runway 18R/36L. The east runway, Runway 17L/35R, will be 8,500 feet in length. It will be located 5,000 feet east of and parallel to Runway 17C/35C (previously 17L/35R). The estimated cost is $300 million. It is anticipated that the east runway will be operational by 1996. Construction on the west runway, Runway 18R/36L, will begin when warranted by aviation demand. It could be available as early as 2001. The estimated cost is $100 million. It will be located 5,800 feet west of Runway 18R/36L (to be renamed 18C/36C). Runway 18R/36L may be constructed in phases, with the first phase a 6,000 foot runway located north of Runway 13R/31L. The second phase extension to 9,760 feet would intersect and continue south of Runway 13R/31L. These runways could potentially permit triple or quadruple IFR arrival operations if the multiple approach concepts are approved.



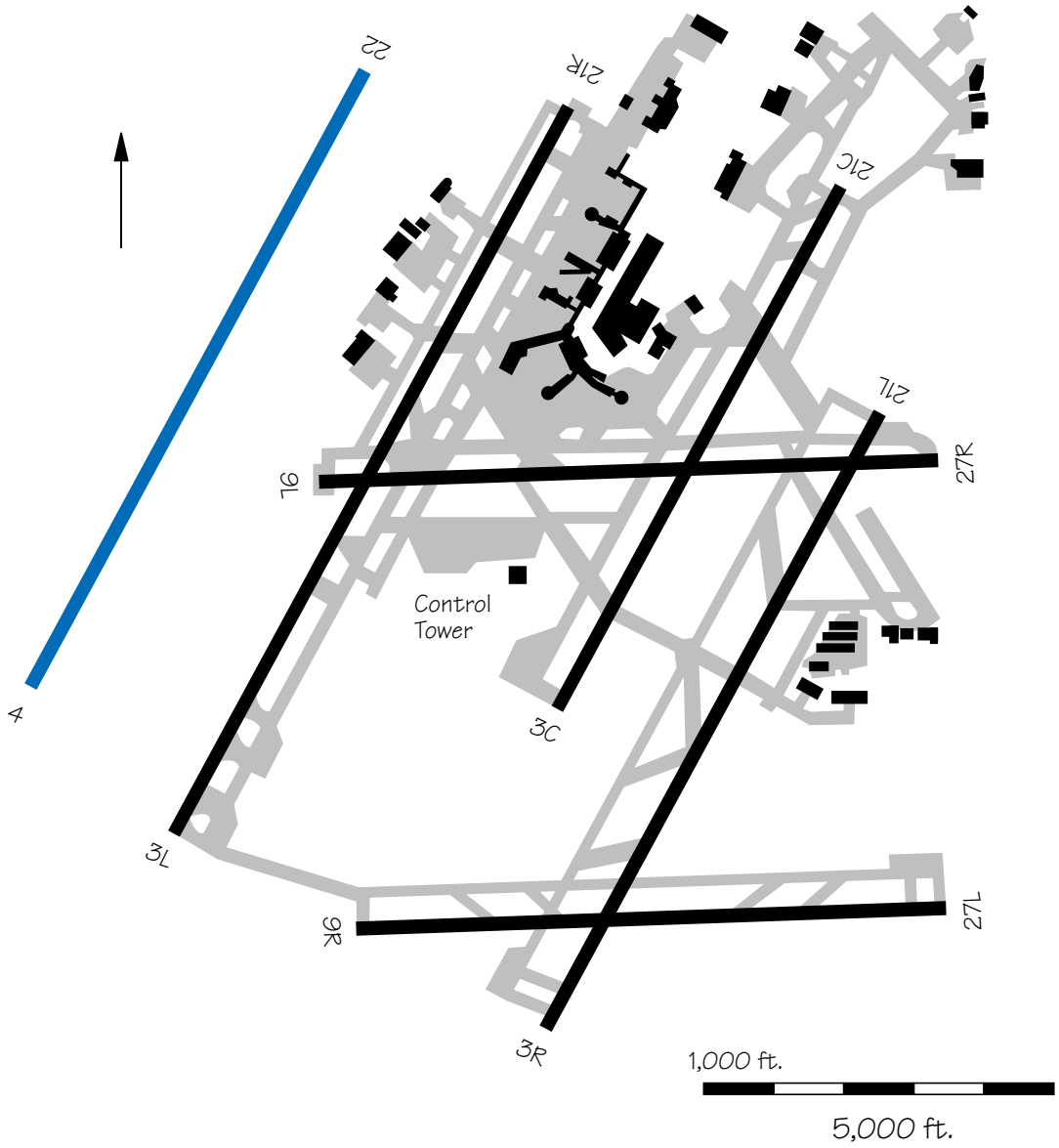
DSM — Des Moines International Airport

An Environmental Impact Study was recently completed on a southwest extension of Runway 5/23. Construction is planned to begin in 1997, and is expected to be completed in 1999. Cost for construction is estimated at $21.5 million, with an estimated additional $24 million for road relocation.



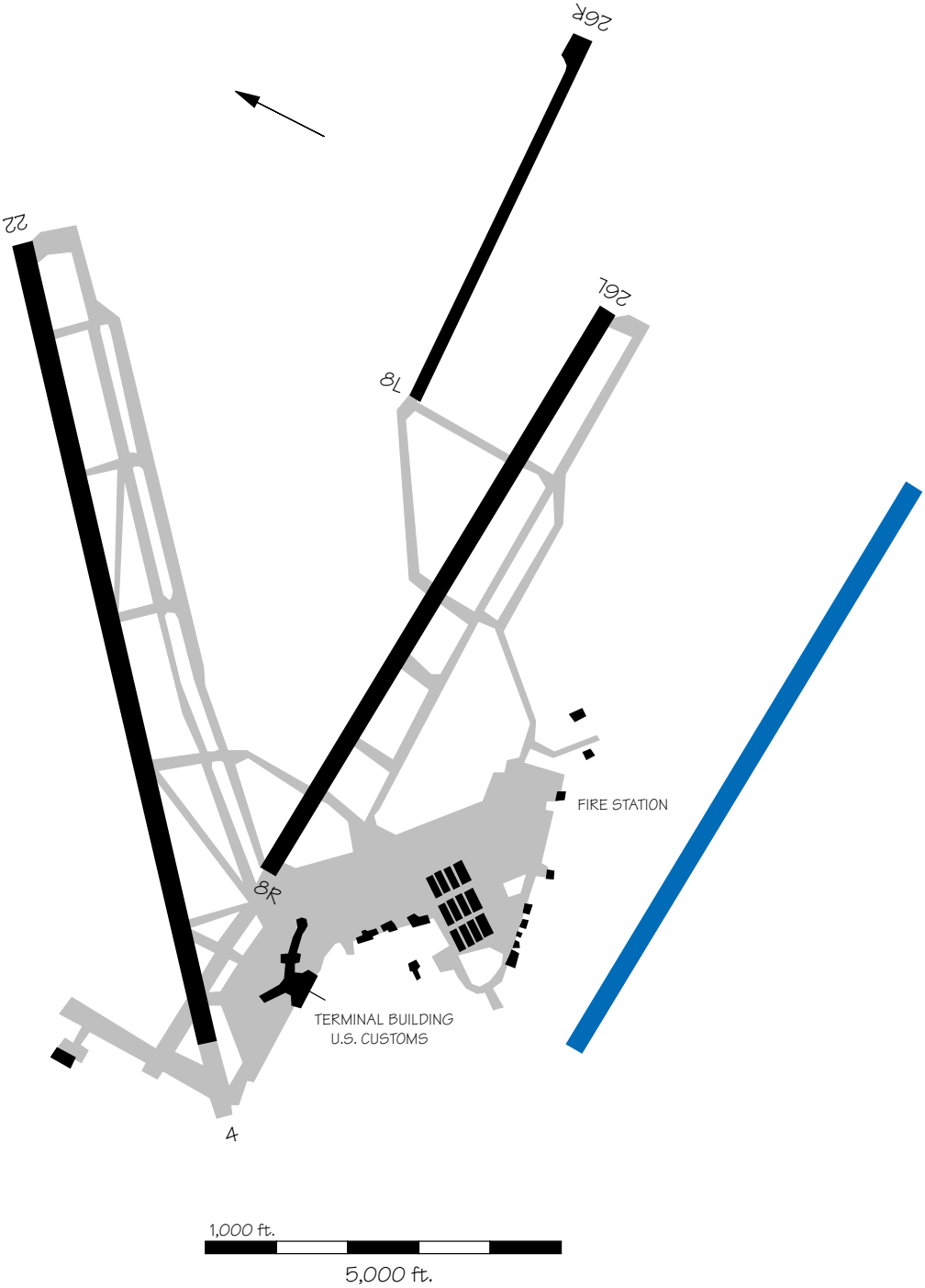
DTW — Detroit Metropolitan Wayne County Airport

A fourth north-south parallel, Runway 4/22, 2,667 feet west of Runway 3L/21R, is planned. Construction is expected to begin in 1999 and should be completed in 2001. The estimated cost of construction is $116.5 million. This runway could potentially permit triple IFR arrivals with one dependent and one independent pairing. An environmental assessment was submitted in September 1989, and a record of decision was issued in March 1990. Land acquisition is currently in progress.



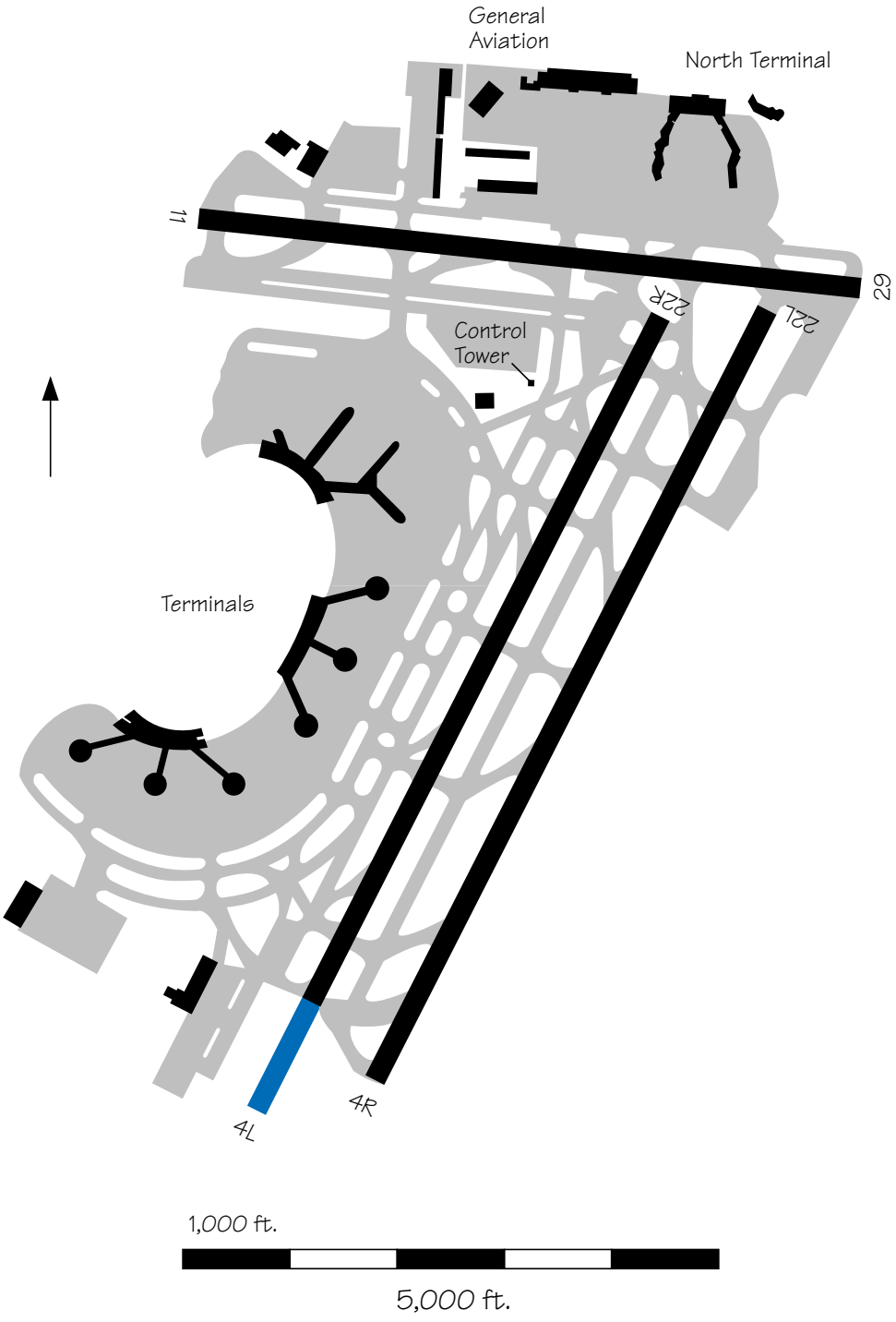
ELP — El Paso International Airport

A new parallel Runway 8/26 is planned in conjunction with a taxiway between the airport and Fort Biggs. Construction is expected to begin in 1999 with an estimated cost of $10.7 million.



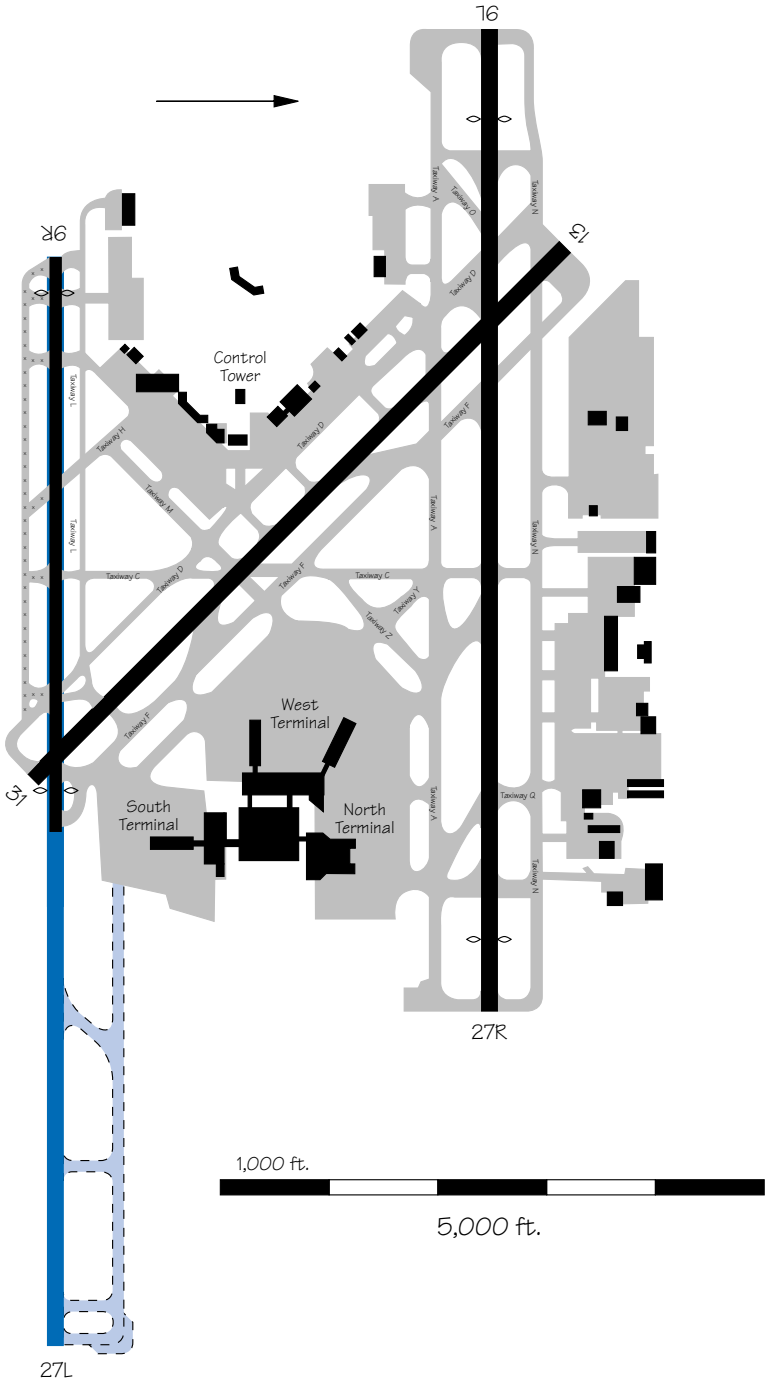
EWR — Newark International Airport

An extension to Runway 4L/22R is in the preliminary planning stage. The estimated operational date is 2000.



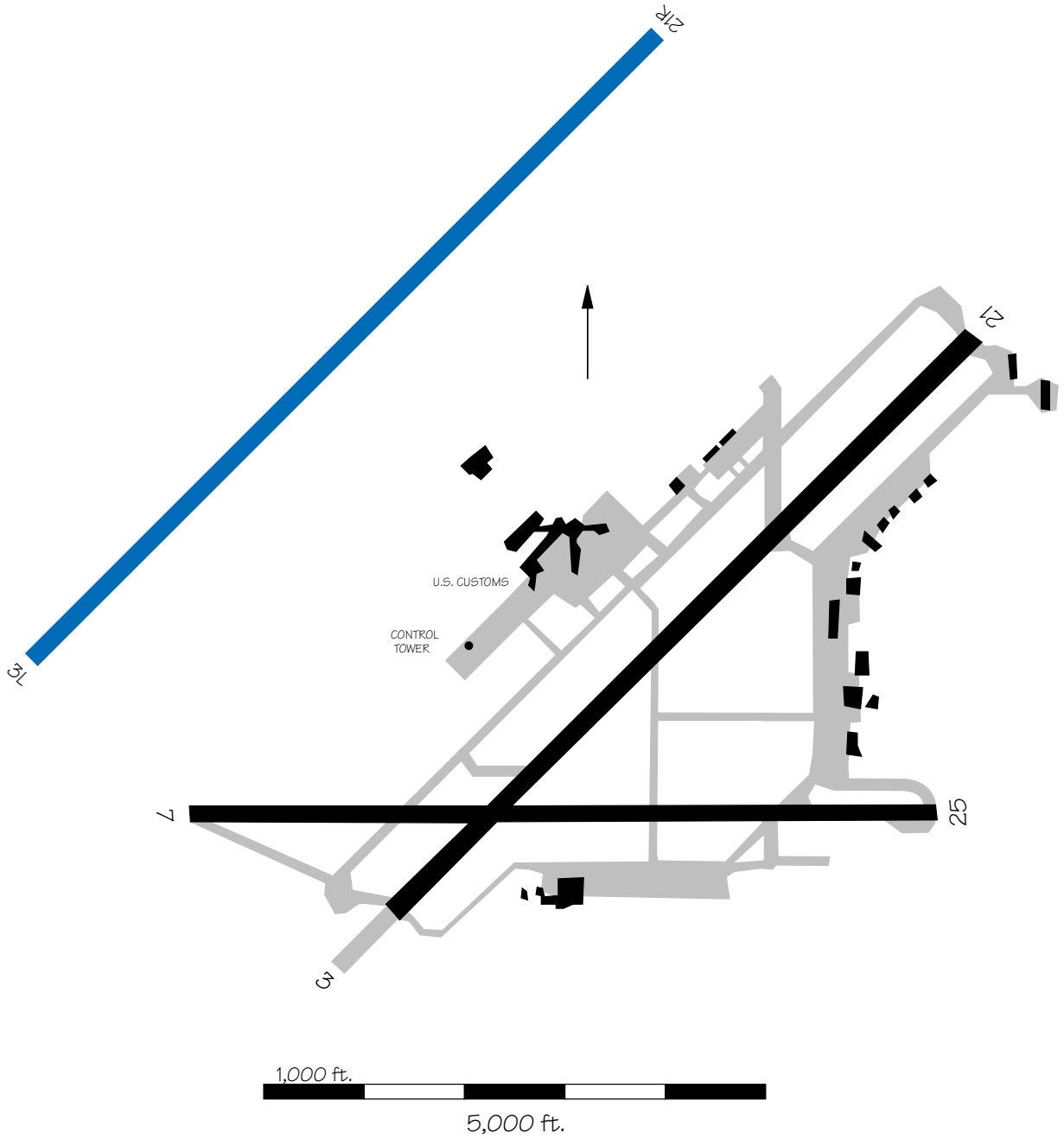
FLL — Fort Lauderdale-Hollywood International Airport

An extension of the short parallel Runway 9R/27L to 10,000 feet long by 150 feet wide is planned to provide the airport with a second parallel air carrier runway. Construction is expected to begin in 1997. The estimated cost of construction is $270 million. The anticipated operational date is 2002. An EIS is underway and expected to be completed in the fall of 1996.



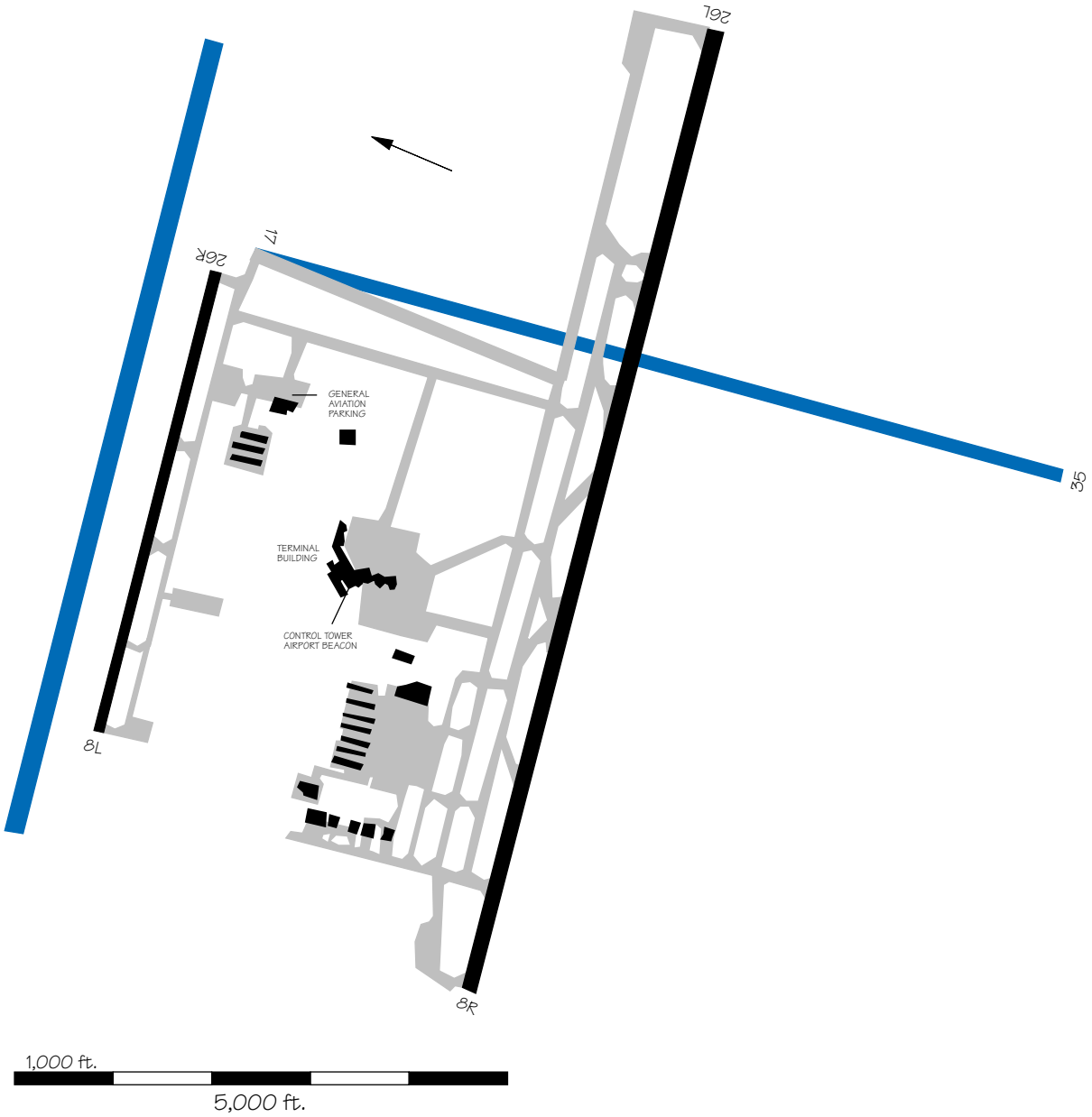
GEG — Spokane International Airport

Future projects include the construction of a new parallel Runway 3L/21R. The new runway will be 8,800 feet long by 150 feet wide and will be separated from Runway 3R/21L by 4,300 feet. This would enable independent parallel operations, doubling hourly IFR arrival capacity. The estimated cost of construction of the new runway is approximately $11 million. Construction could be started as early as 1999.



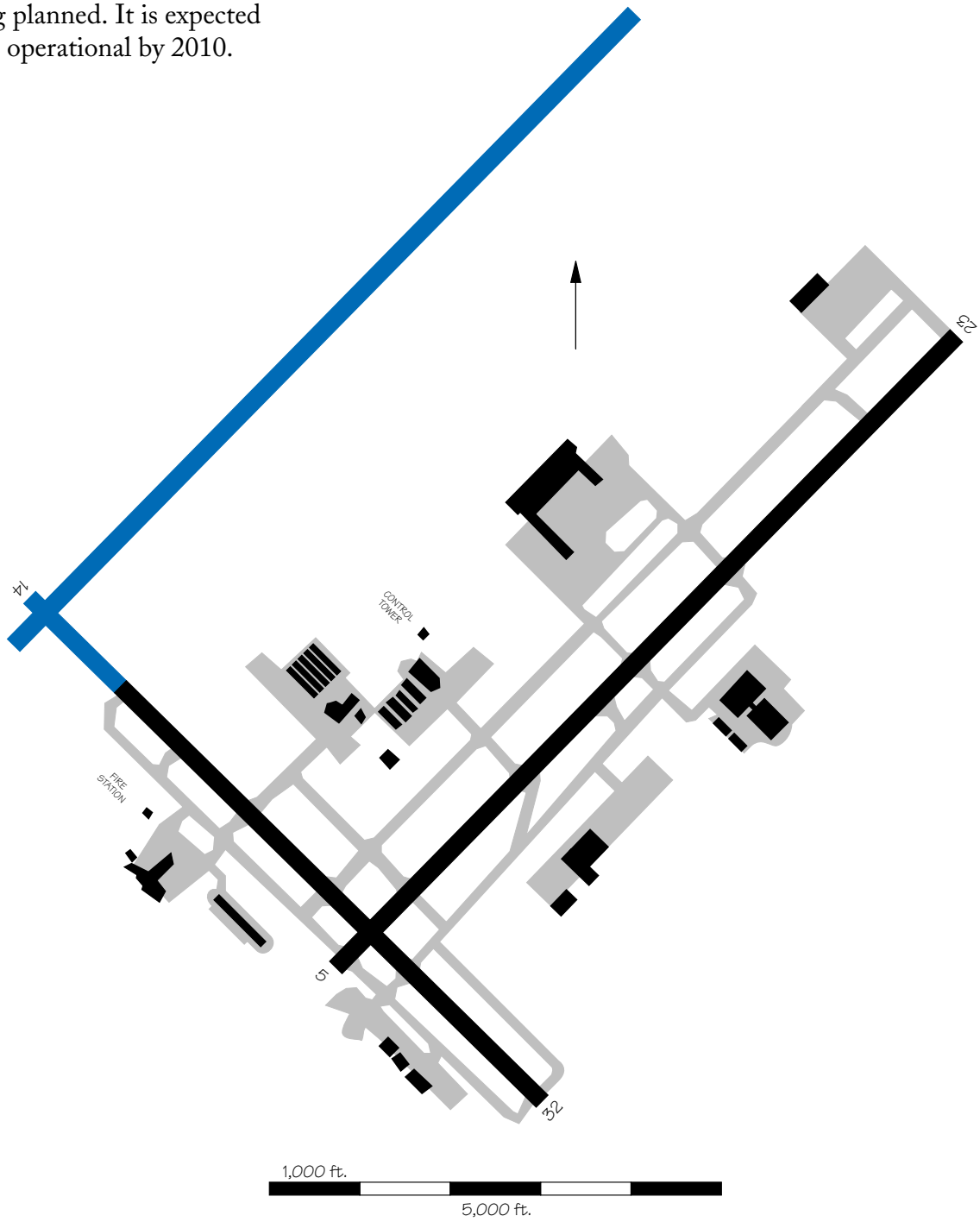
GRR — Grand Rapids Kent County International Airport

An extension to 8,500 feet and realignment for the cross-wind Runway 18/36 (17/35) is under construction. Estimated cost is $58 million. The runway will provide wind coverage, noise relief, and reduce winter weather related delays by providing a second air carrier runway. Construction is expected to be complete in 1997. A new 7,000 foot parallel Runway 8L/26R is planned for future development. The current 8L/26R would be converted into a taxiway at that time.



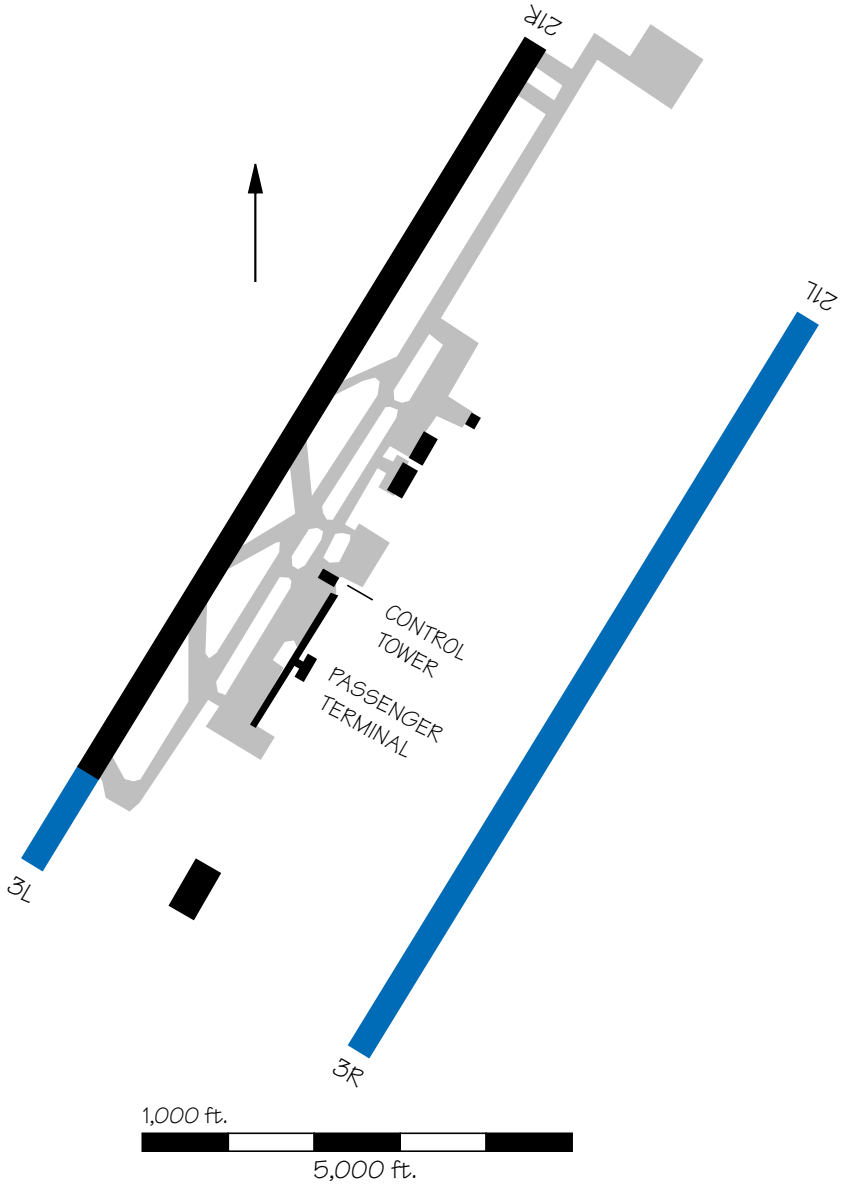
GSO — Greensboro Piedmont Triad International Airport

An extension of Runway 14/32 is planned. It is expected to be operational by 2000, at a cost of $15.7 million. Construction of a new parallel Runway 5L/23R, 5,300 feet north of Runway 5/23, is also being planned. It is expected to be operational by 2010.



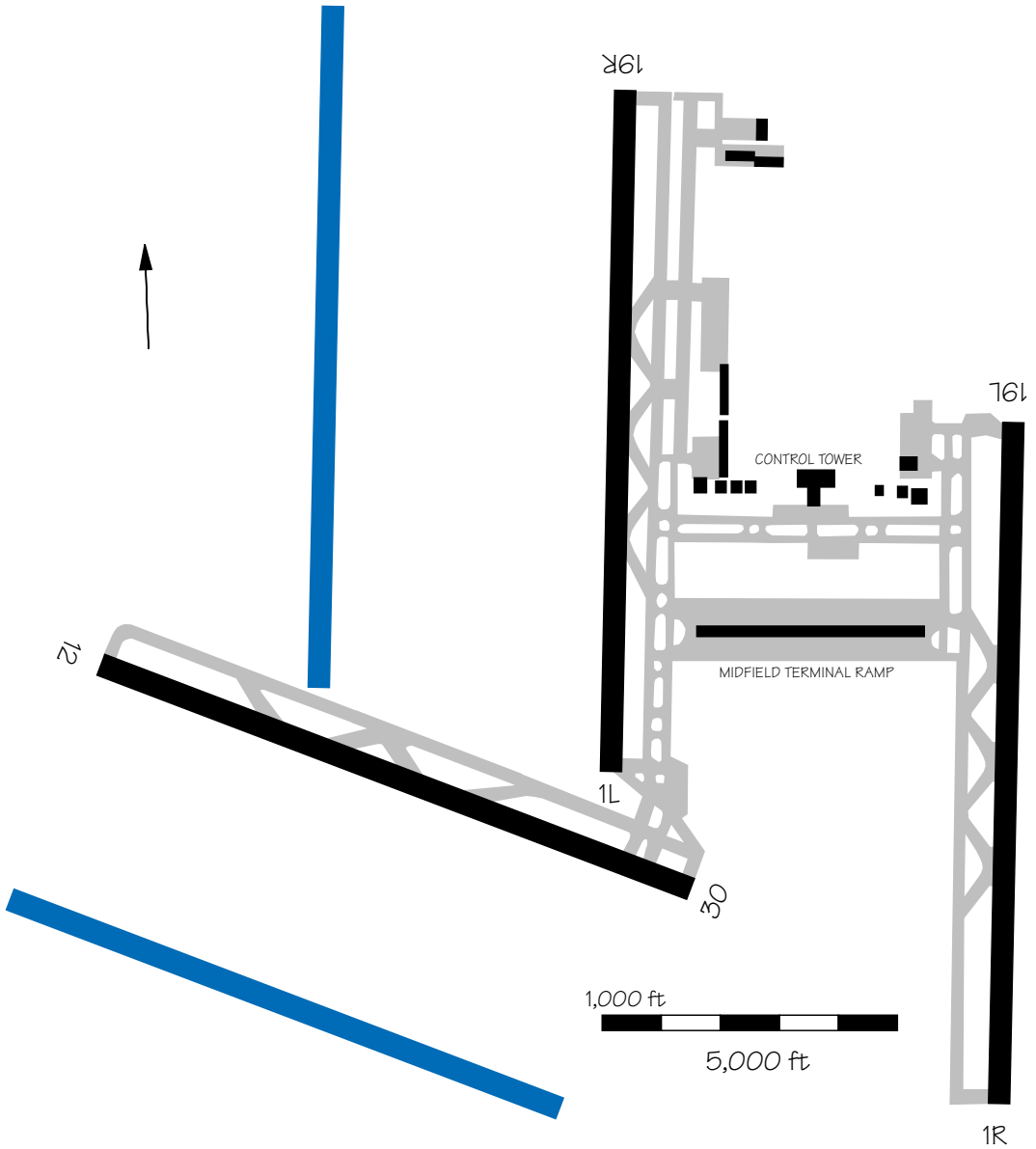
GSP — Greer Greenville-Spartanburg Airport

A new parallel runway, Runway 3R/21L, is anticipated in 2015 at an estimated cost of $50 million. Presently, its planned length is 10,000 feet with a 4,350 foot separation from Runway 3/21. This would potentially double hourly IFR arrival capacity Also, an extension of Runway 3L/21R to 12,200 feet is planned. Construction is expected to be completed by 1999 at a cost of $34.1 million.



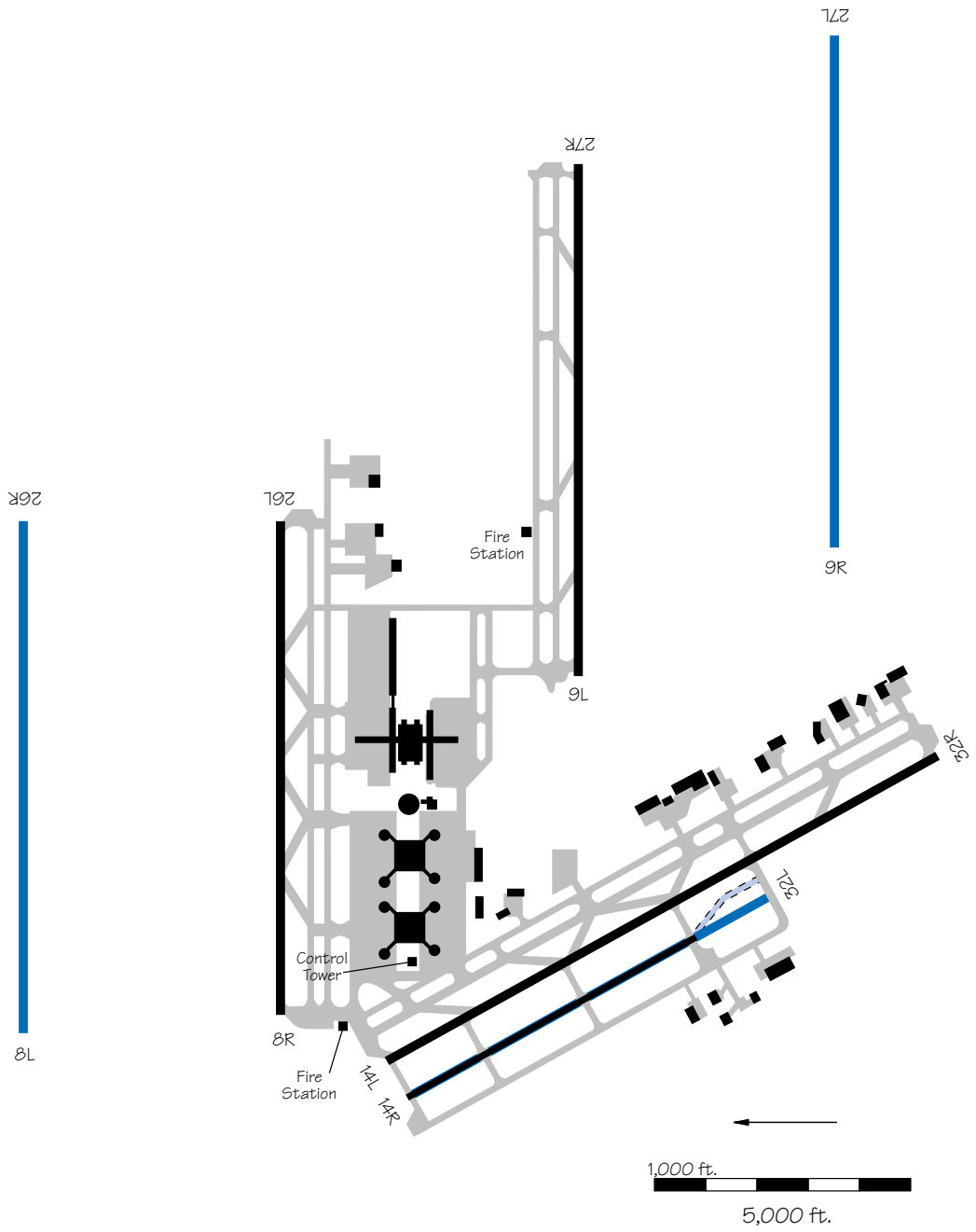
IAD — Washington Dulles International Airport

Two new parallel runways are under consideration. A north-south parallel, Runway 1W/19W, would be located 5,000 feet west of the existing parallels and north of Runway 12/30. Estimated opening data is 2009. This could provide triple independent parallel approaches, if they are approved. A second parallel Runway 12R/30L has been proposed for location 4,300 feet southwest of Runway 12/30. The runway is expected to be completed by 2010.



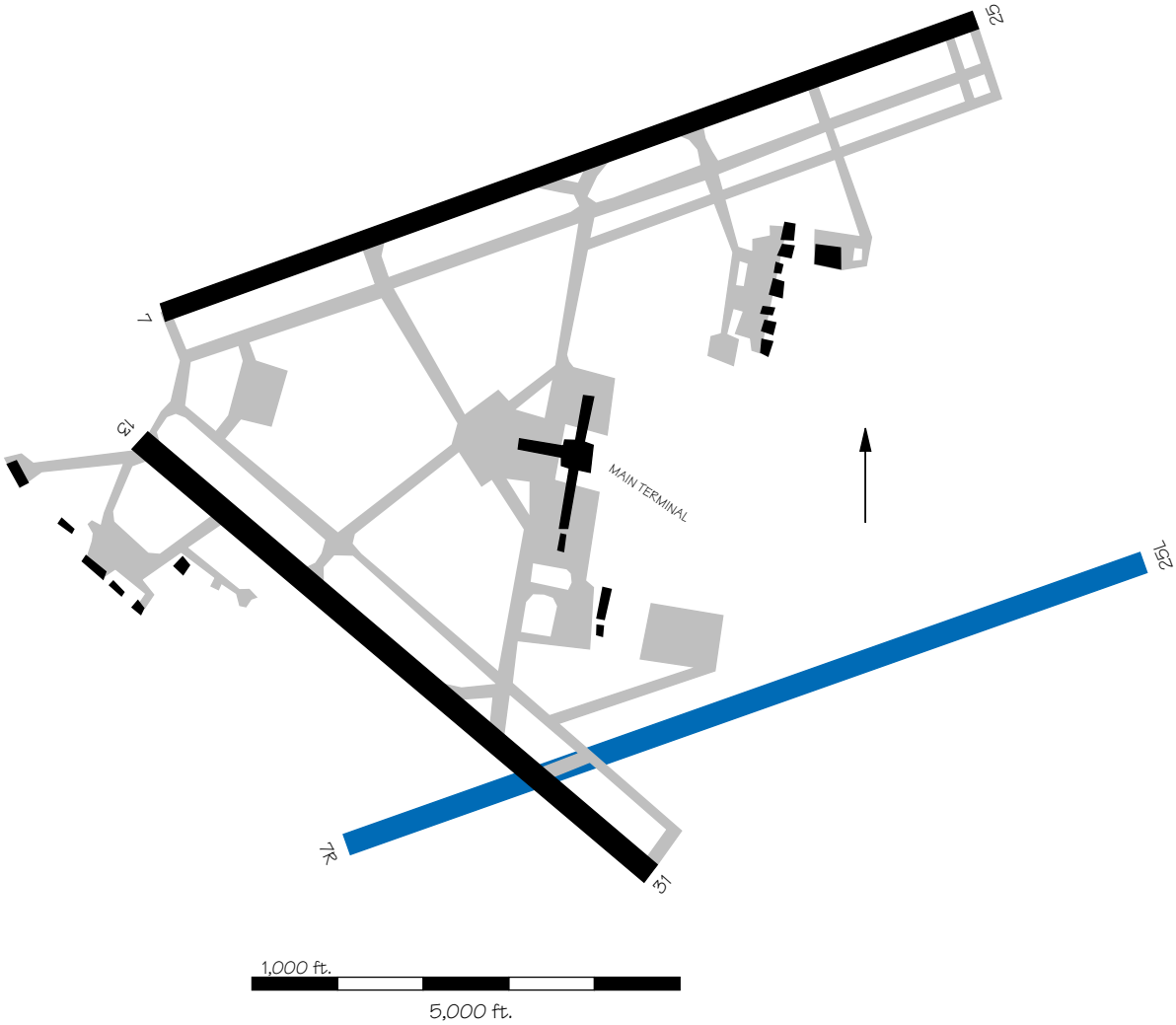
IAH — Houston Intercontinental Airport

An $8 million 2,000-foot extension to Runway 14R/32L is planned to be operational in 1997. Construction is expected to begin in 1996. A new Runway 8L/26R is planned to be parallel to and north of the existing Runway 8/26. Runway 8L/26R, in conjunction with Runways 9/27 and 8/26, has the potential to support triple IFR approaches, if approved. Another new runway, parallel to and south of Runway 9/27, is also planned. Construction is expected to cost $44 million for each new runway.



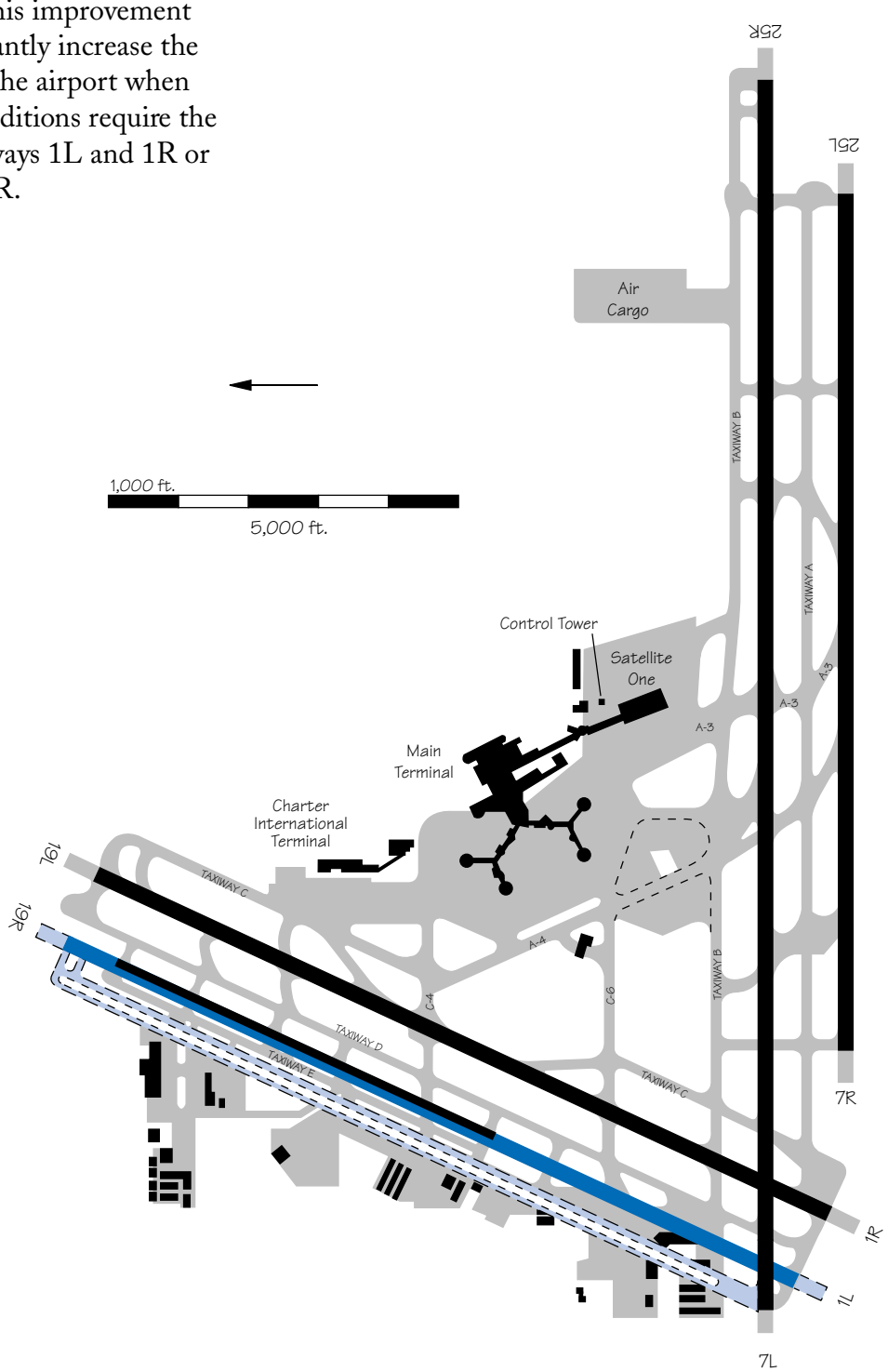
JAX — Jacksonville International Airport

A new parallel Runway 7R/25L is being planned. It will be 6,500 feet south of the existing Runway 7/25, permitting independent parallel IFR operations and potentially doubling Jacksonville's hourly IFR arrival capacity. Construction is scheduled to begin in 1999, with completion expected in 2000. Estimated cost of construction is $37 million.



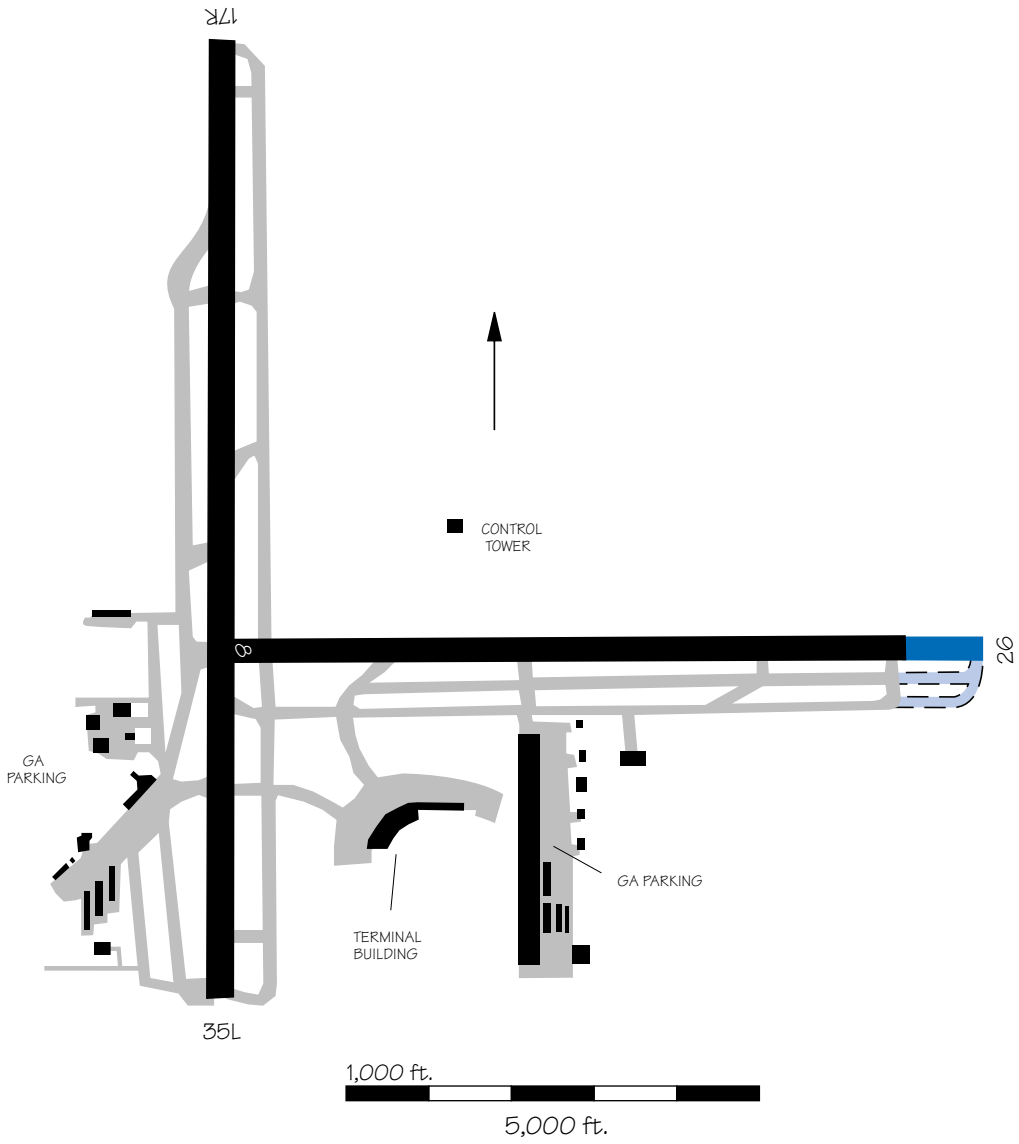
LAS — Las Vegas McCarran International Airport

An upgrade of Runway 1L/19R to accommodate air carrier aircraft is being planned for 1997. This improvement will significantly increase the capacity of the airport when weather conditions require the use of Runways 1L and 1R or 19L and 19R.



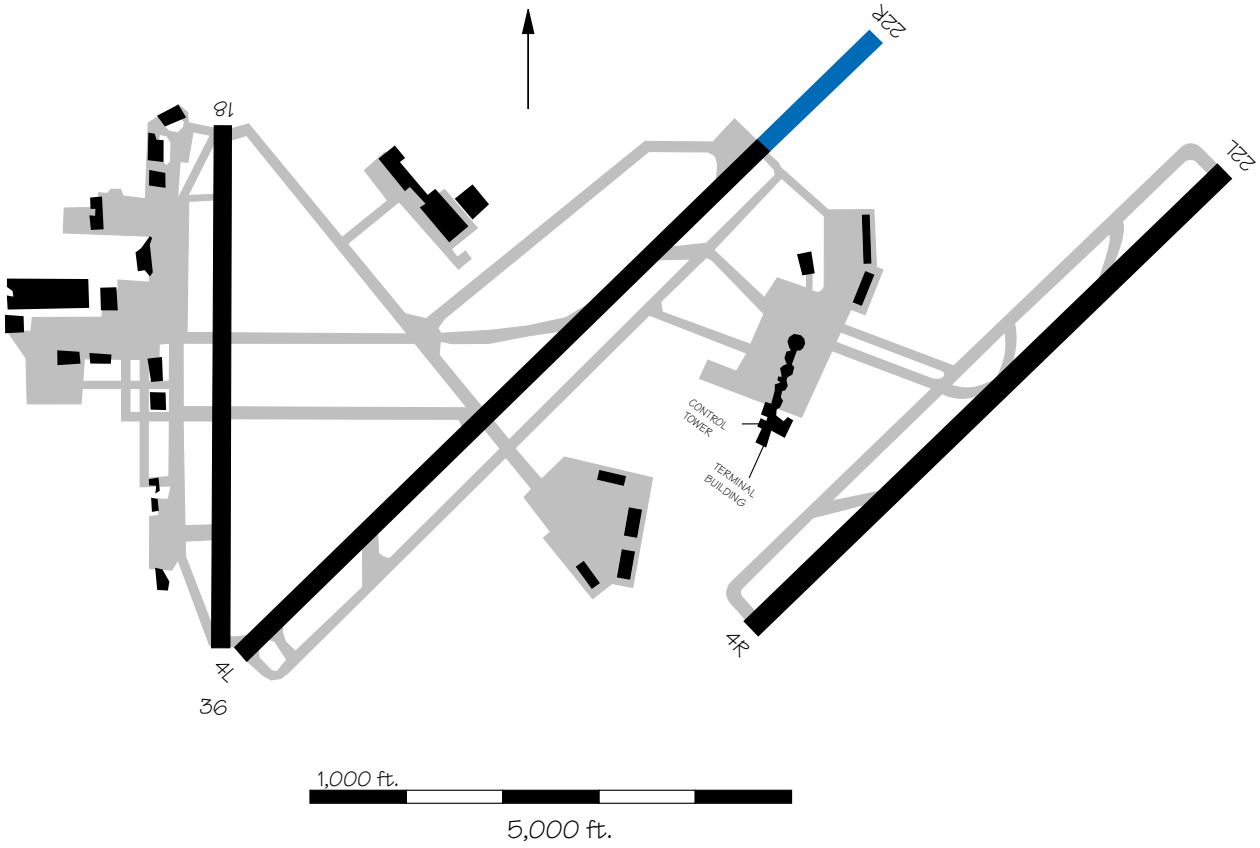
LBB — Lubbock International Airport

An extension to Runway 8/26 is planned. The start of construction is scheduled for 1999 and the estimated cost is $5 million. It is anticipated that the extension will be operational in 2000.



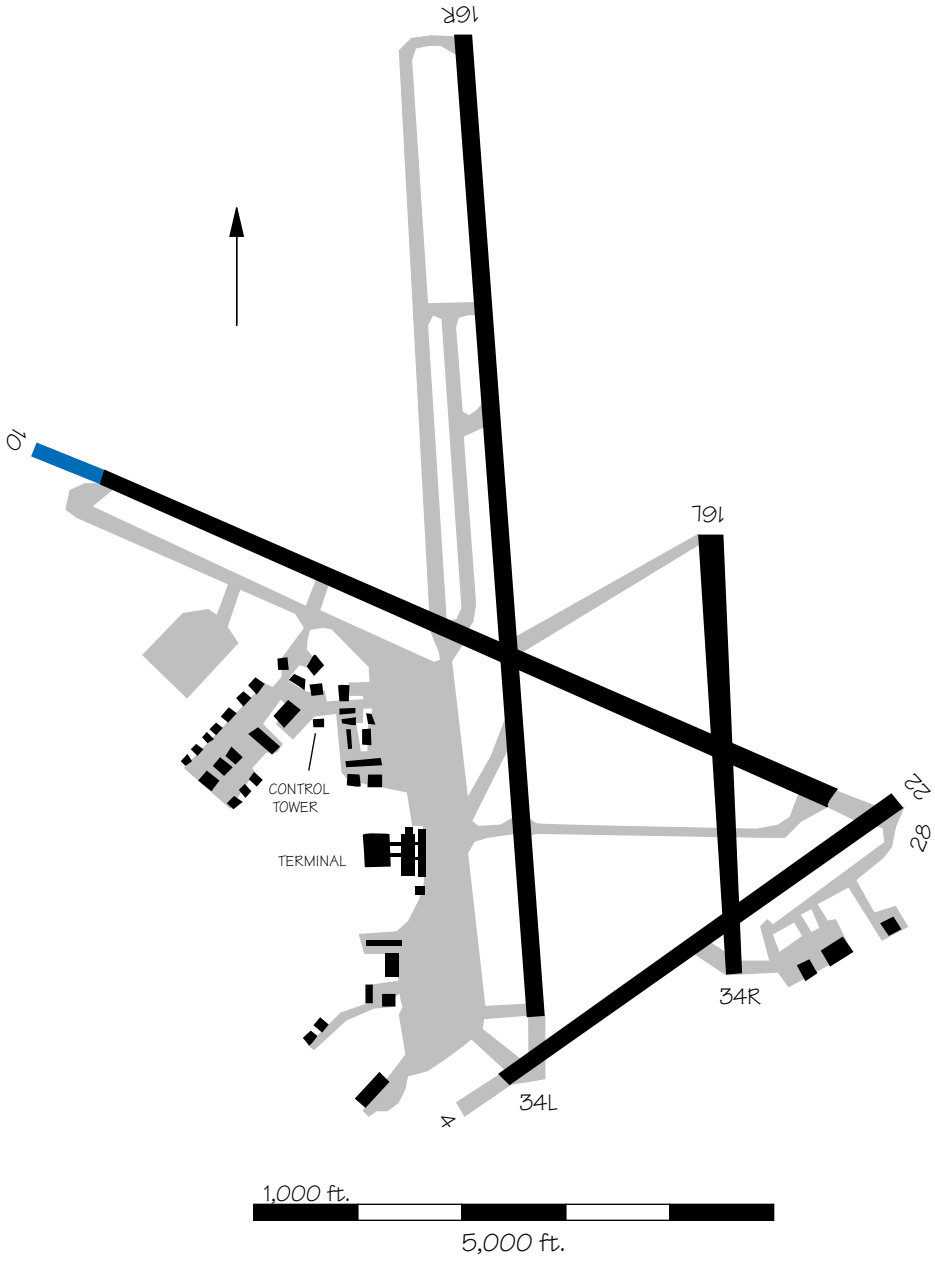
LIT — Little Rock Adams Field

An extension of Runway 4L/22R is underway, and should be operational in 1997. The estimated cost of construction is $31 million, including the resurfacing/ reconstruction of the existing runway.



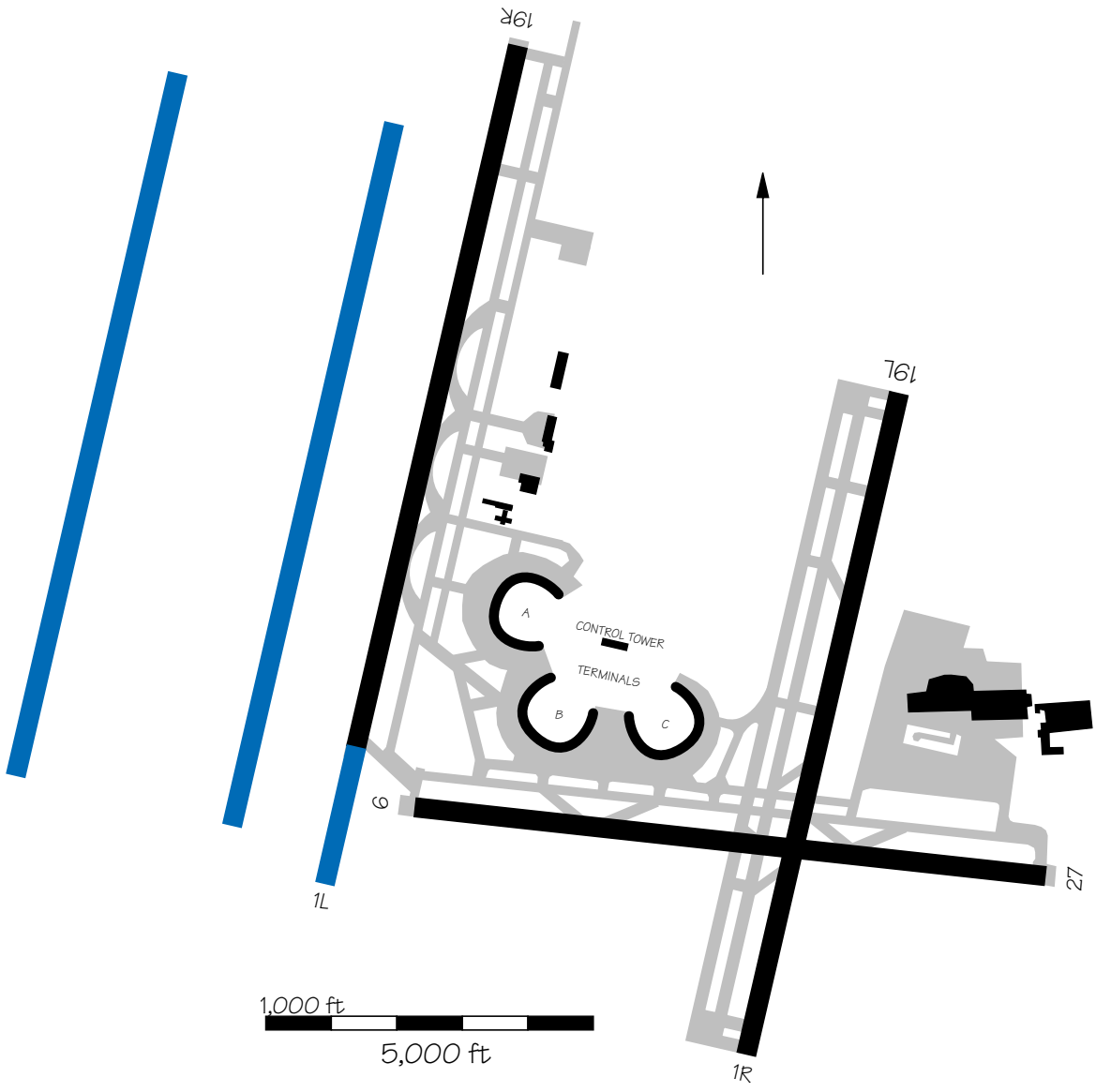
MAF — Midland International Airport

An extension to Runway 10/28 is planned, and construction is scheduled to begin in 2007.



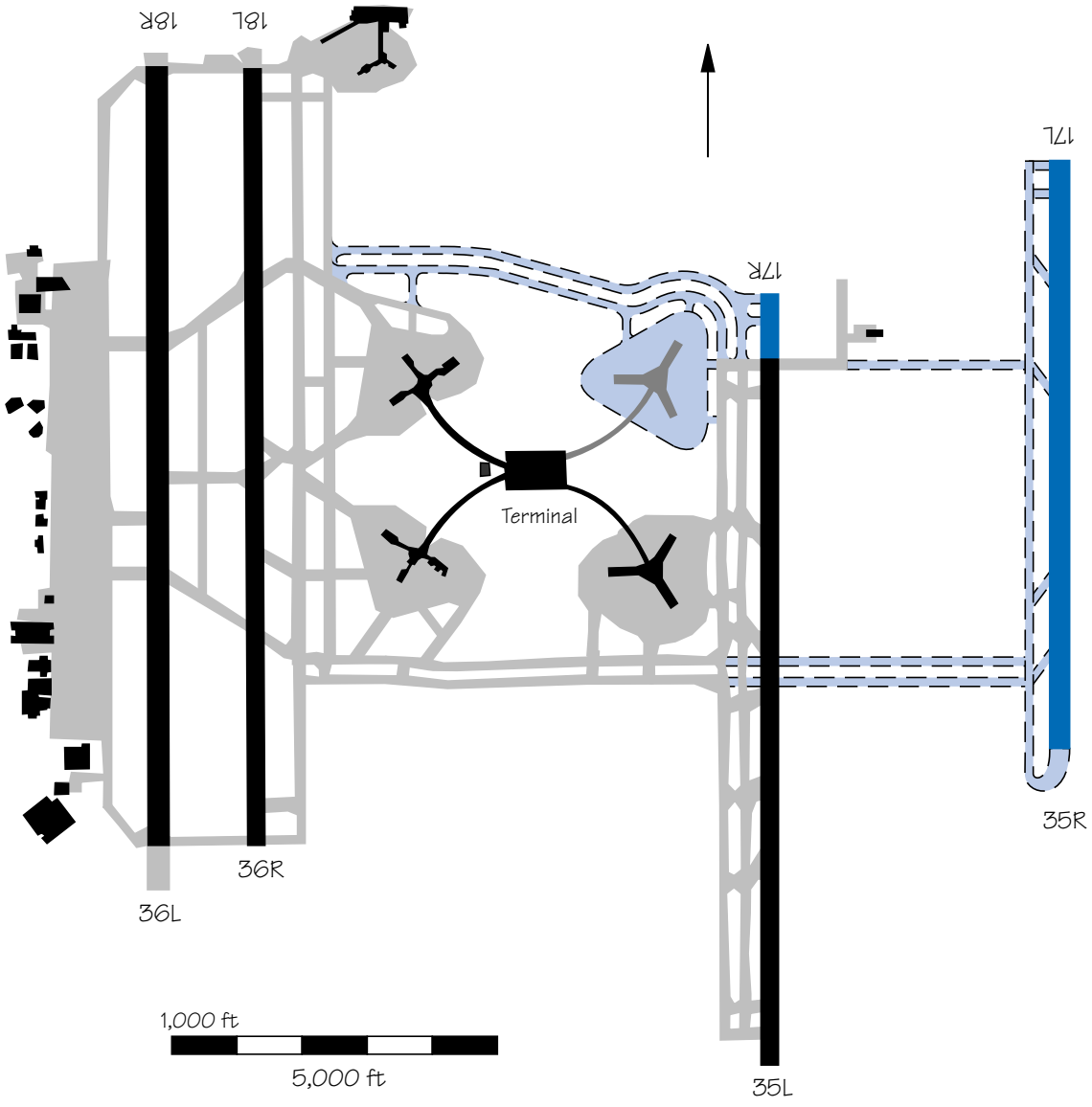
MCI — Kansas City International Airport

In accordance with the Airport Master Plan, an extension of Runway 1L/19R is currently planned. Additional parallel runways west of the existing north-south runway are being considered.



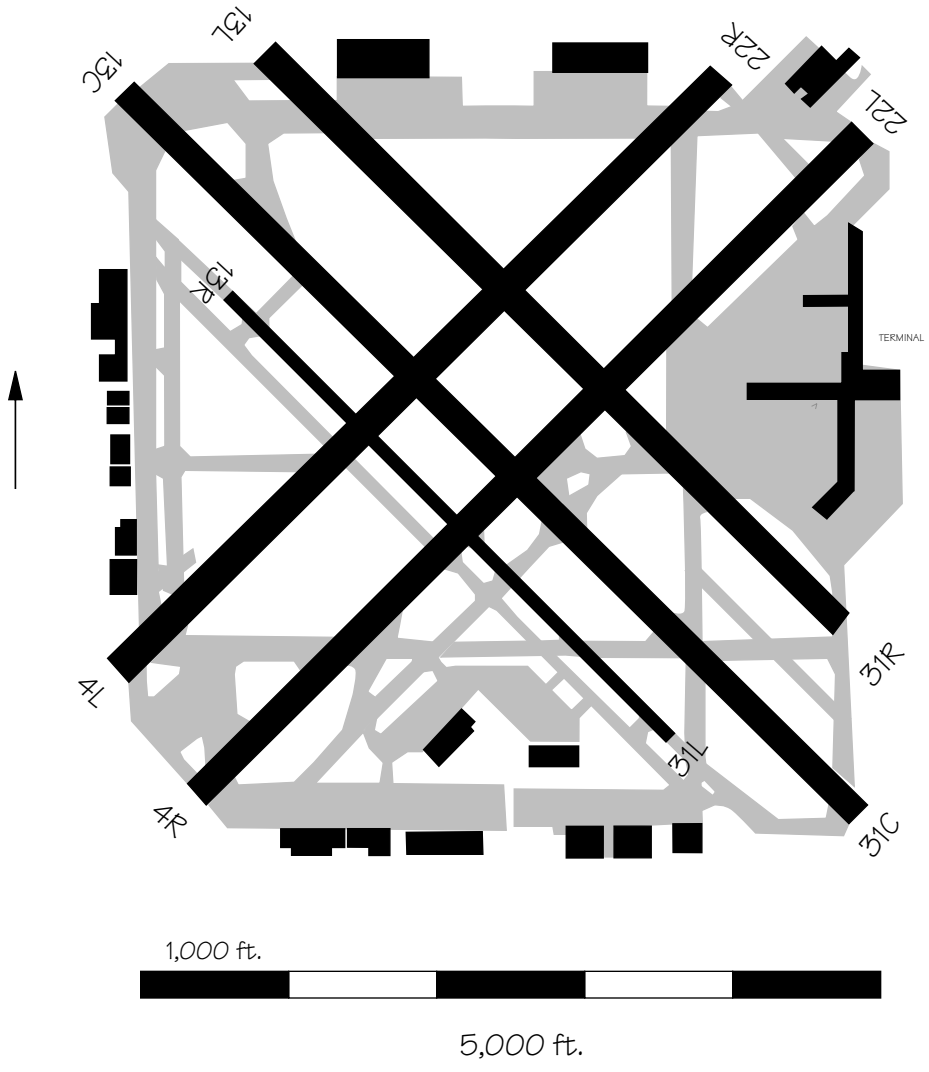
MCO — Orlando International Airport

Environmental mitigation for a fourth north-south runway, Runway 17L/35R, began October 10, 1990. The runway is expected to be operational in 2002. It will be located 4,300 feet east of Runway 17R/35L. This may permit triple independent IFR operations. The estimated cost of construction of this runway is $137 million. Also planned is a 1,000 ft. extension to Runway 17R/35L.



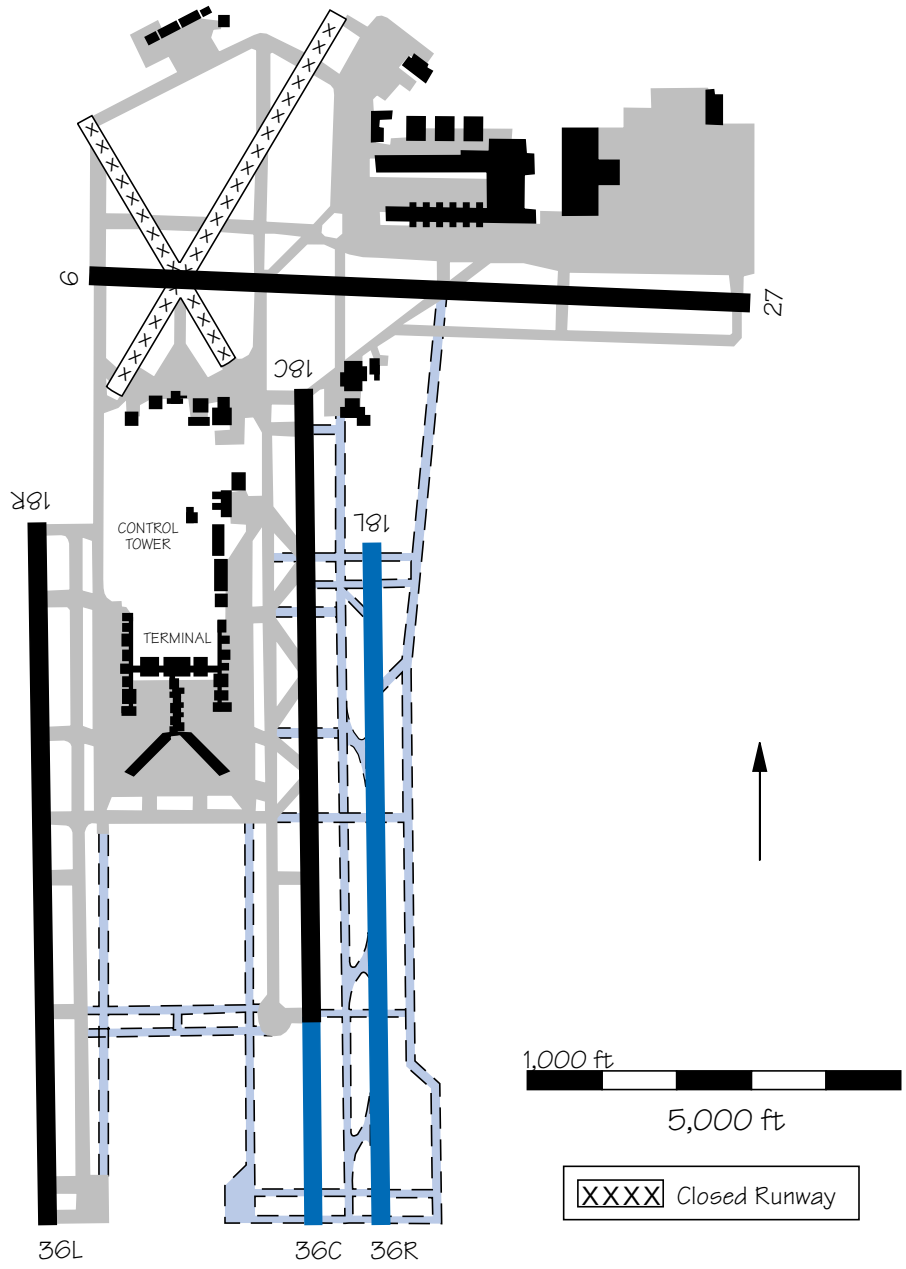
MDW — Chicago Midway Airport

Reconstruction of Runway 4R/22L is scheduled to start in 1997, with a projected cost of $32 million. The project is expected to be completed that same year.



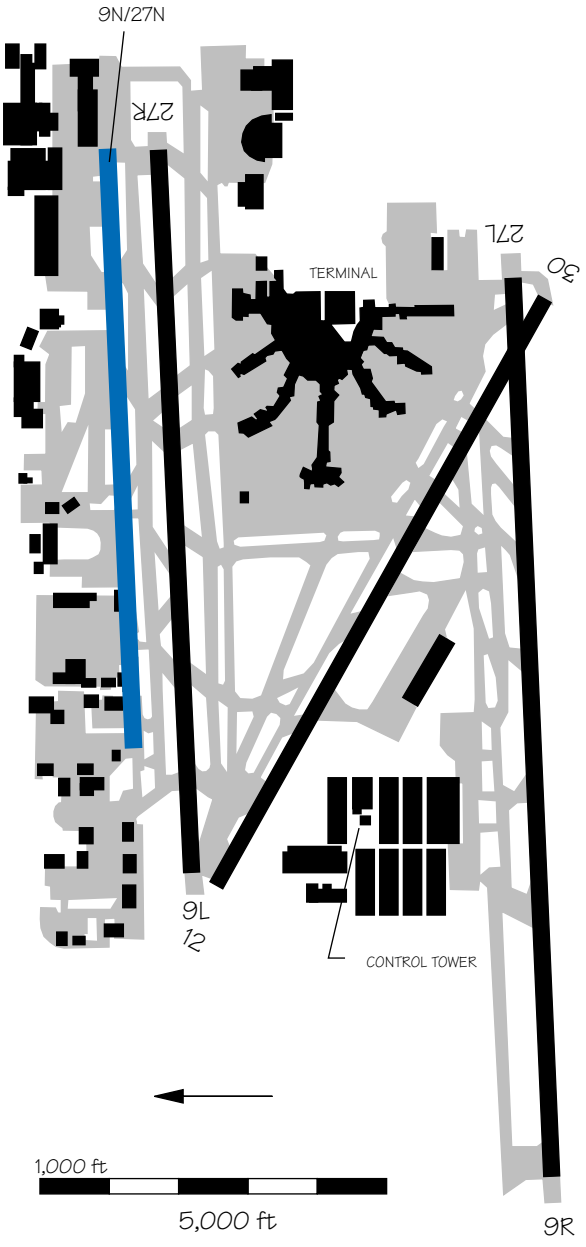
MEM — Memphis International Airport

Construction of a new north-south parallel Runway 18L/36R began in 1993. It will be located about 900 feet east of Runway 18C/36C (old 18L/36R) and 4,300 feet from Runway 18R/36L, thus allowing independent parallel approaches. This will increase present hourly IFR arrival capacity by about 33 percent. The new runway should be operational in 1996. The estimated cost is $146.1 million. A reconstruction and extension of Runway 18L/36R is also planned. Construction is expected to start in 1997 and be completed by 1999 at a cost of $113.7 million.



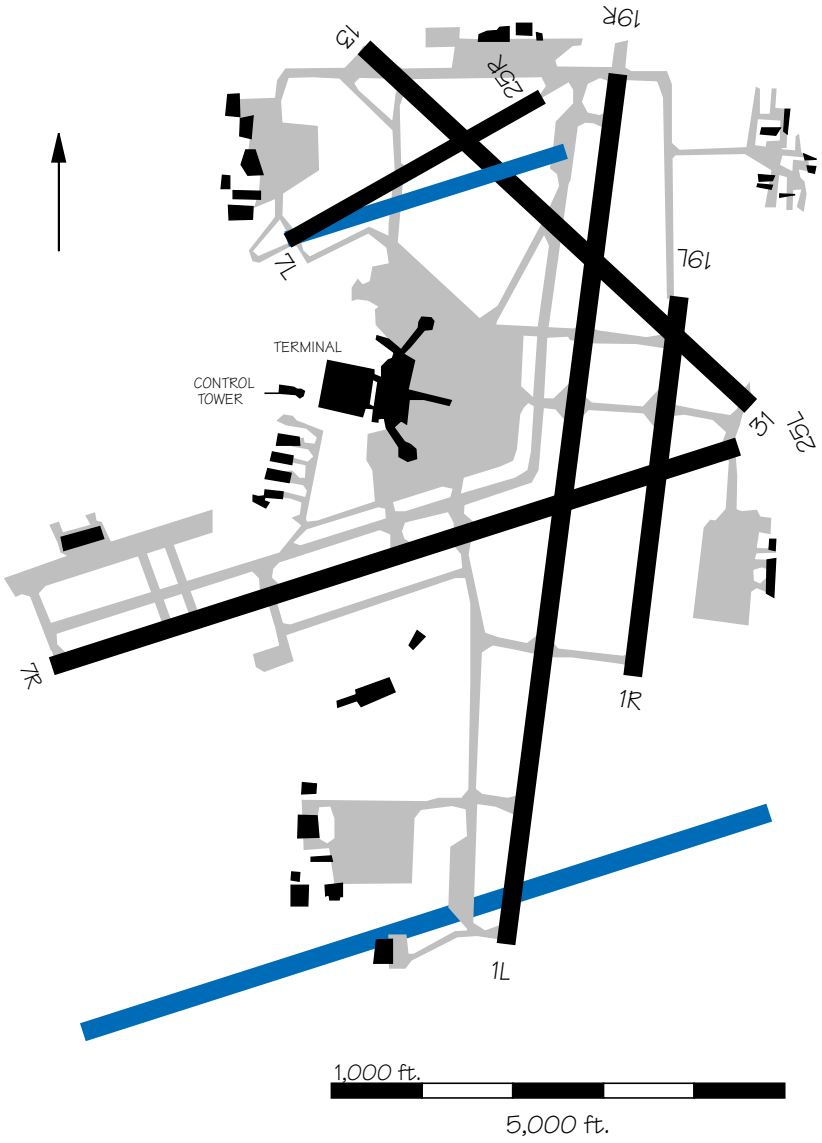
MIA — Miami International Airport

Construction of a new air carrier runway 8,600 feet long and 800 feet north of existing Runway 9L/27R is expected to start in 1997 and be completed by late 1999. The estimated cost of construction is $149 million. An EIS is expected to be completed in mid-1996.



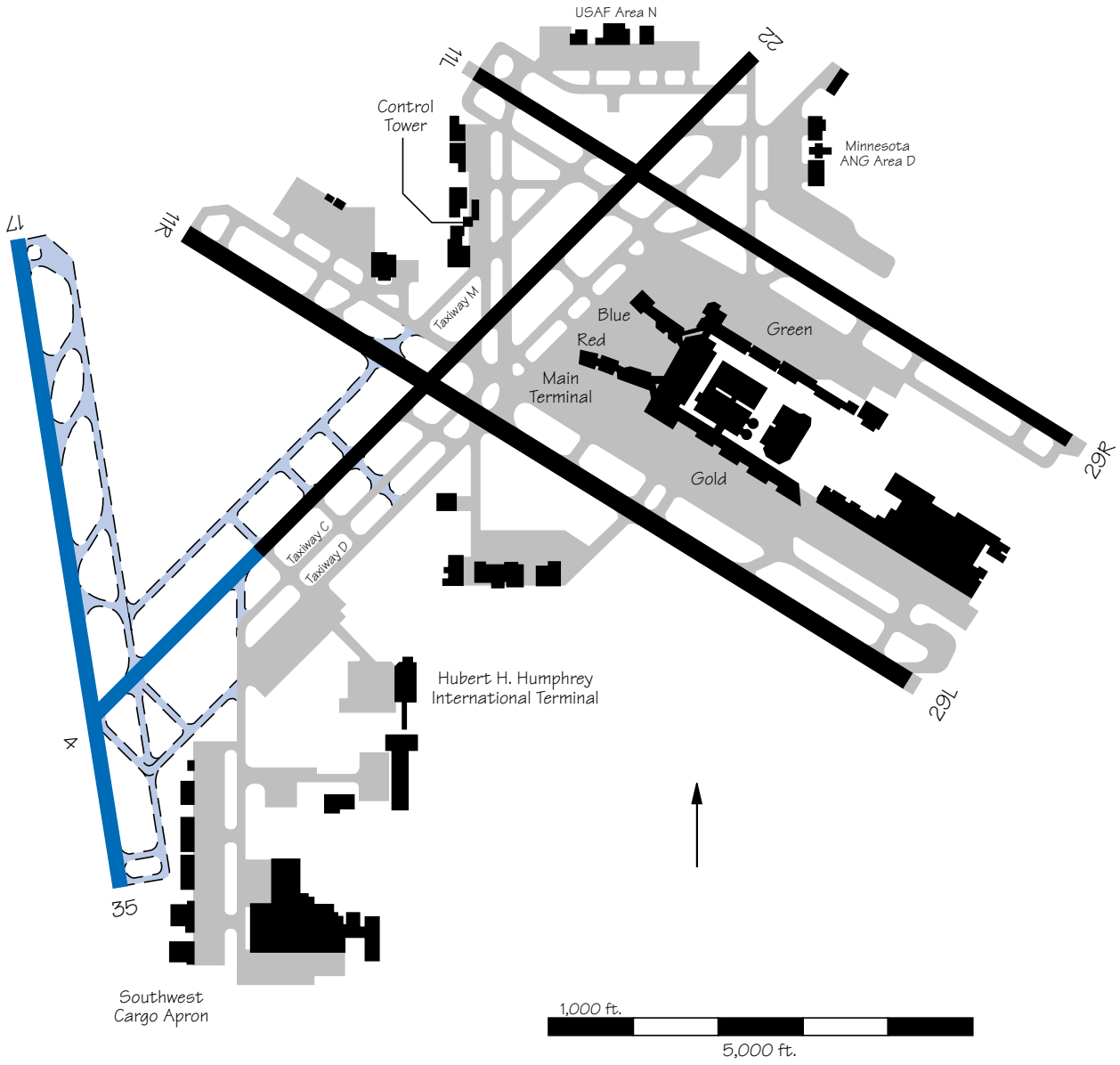
MKE — Milwaukee General Mitchell International Airport

A capacity demand analysis will be done to determine when construction of a new parallel Runway 7R/25L, 3,500 feet south of the existing runway, is needed. An EIS is in progress for the extension of Runway 7L/25R. Realignment of Runway 7L/25R is under grant for construction in 1996, at an estimated cost of $3.5 million.



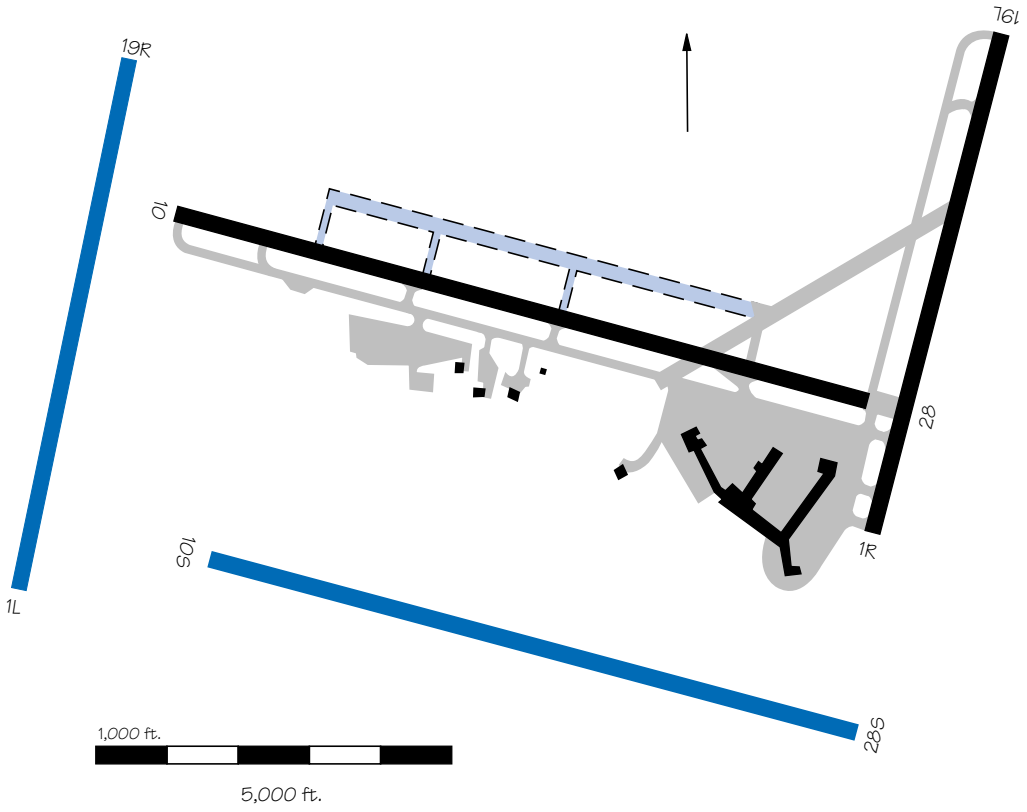
MSP — Minneapolis-St. Paul International Airport

An extension of Runway 4/22, 2,750 feet to the southwest, is proposed, which would bring the runway length to 11,000 feet. Construction began in late 1995, and the extension should be operational in 1996. The estimated cost of construction is $40.2 million, including associated taxiway improvements and noise mitigation for the runway. A new air carrier runway, Runway 17/35, is planned for 2002, at an estimated cost of $120 million.



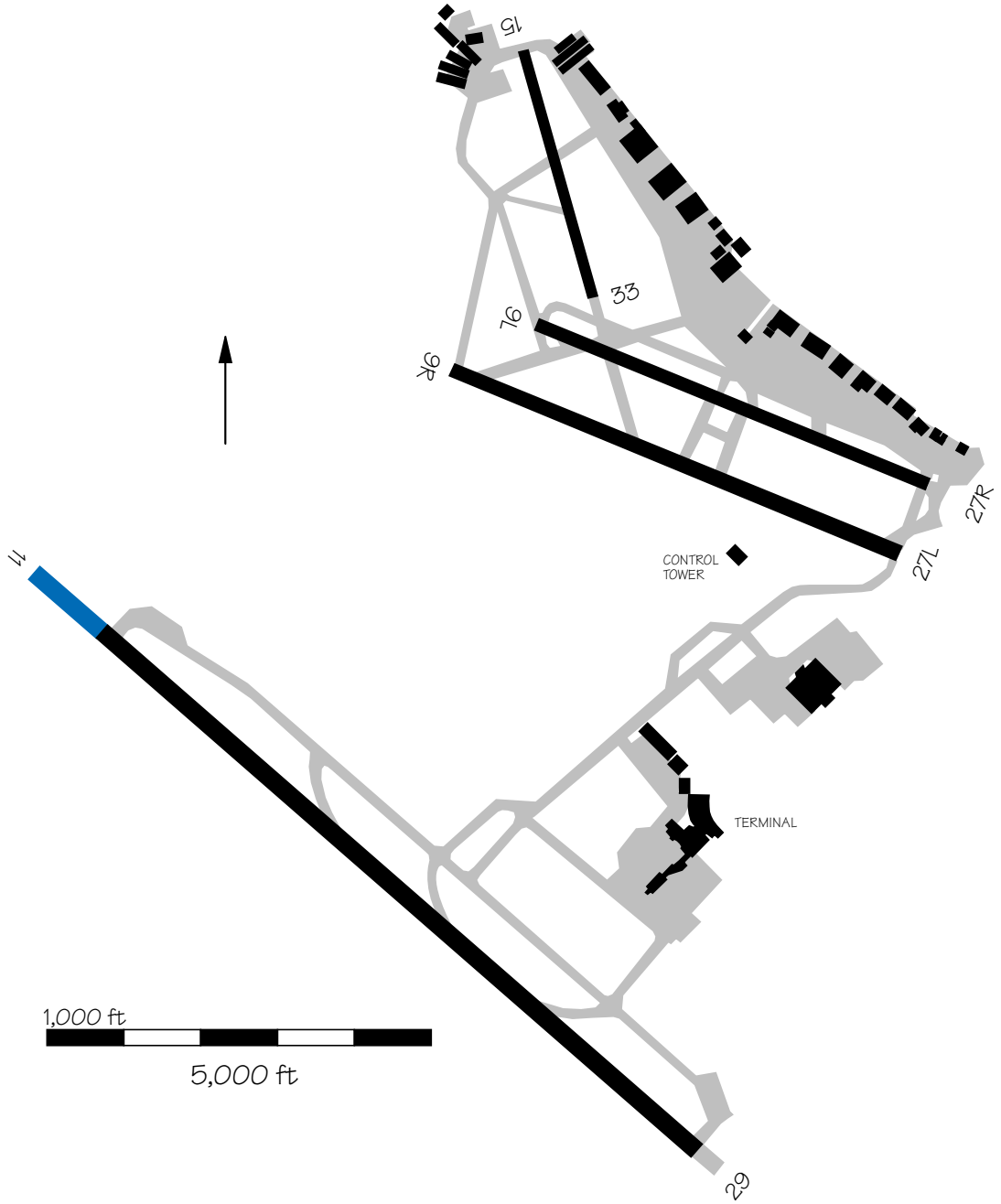
MSY — New Orleans International Airport

A new north-south runway, Runway 1L/19R, is planned. This new runway will be parallel to the existing Runway 1/19 and will be located west of the threshold of Runway 10, approximately 11,000 feet away from Runway 1/19. This will allow independent parallel operations, doubling IFR hourly arrival capacity. Pending environmental approvals, construction could begin as early as 1998 and be completed in 2005, at an approximate cost of $340 million. As an alternative to this north-south runway, the airport is considering the construction of an east/west parallel runway, Runway 10S/28S, 4,300 feet to the south of existing Runway 10/28, off of present airport property. The airport is also planning to construct a north parallel east/west taxiway approximately 800 feet north of and parallel to the existing Runway 10/28, which could later be converted into a 6,000-foot commuter and general aviation runway. The estimated cost of construction is $34 million, and the expected operational date is 1998.



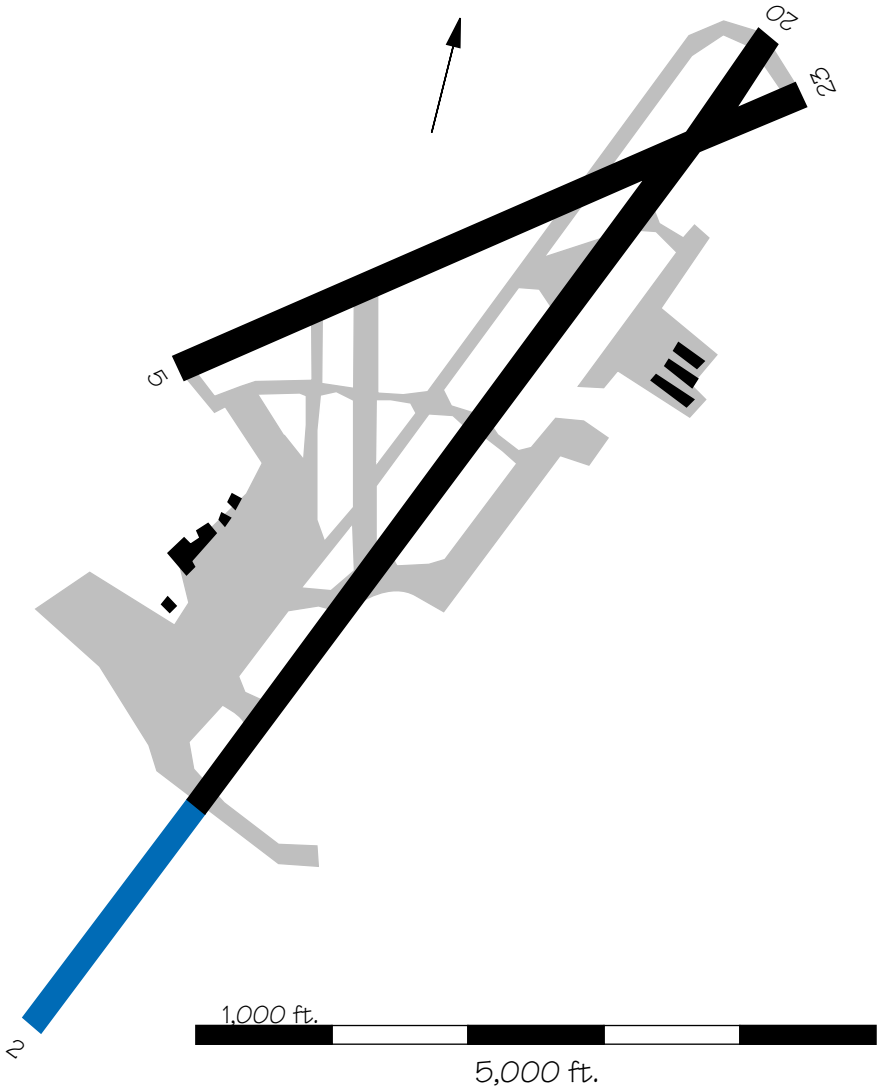
OAK — Metropolitan Oakland International Airport

An extension to Runway 11/29 is planned for ultimate development.



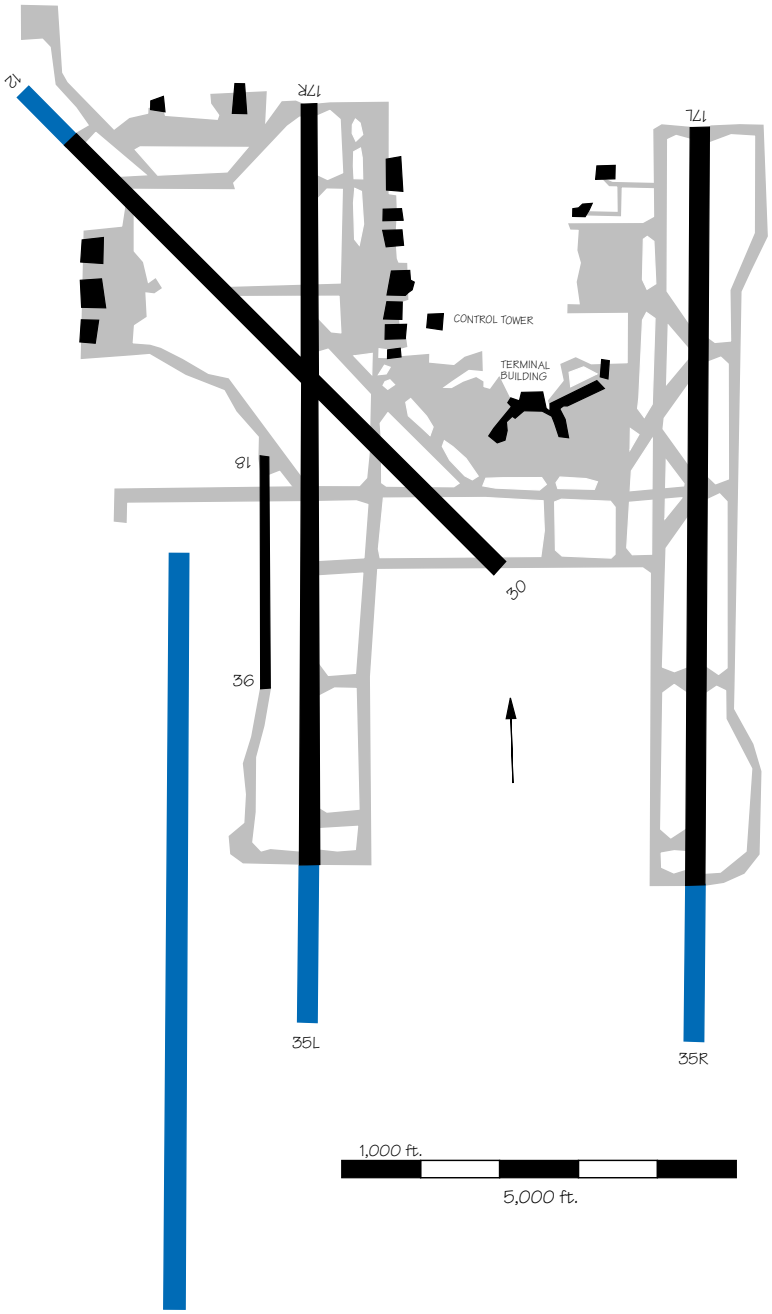
OGG — Kahului Airport

An extension of Runway 2/20 is being planned. An EIS is underway, and the extension could be operational by mid-1998, at a cost of $40 million.



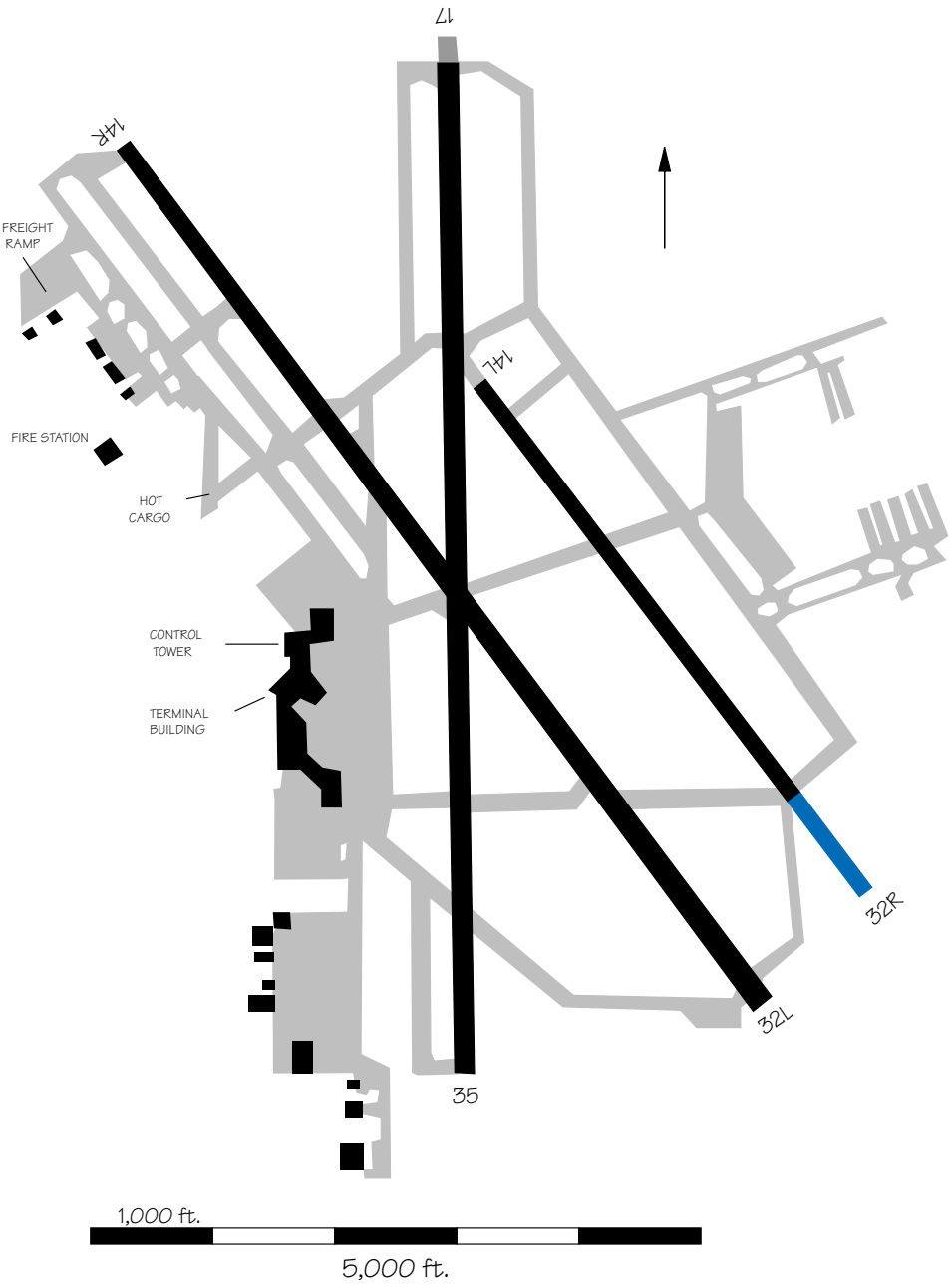
OKC — Oklahoma City Will Rogers World Airport

Construction of a new west parallel runway 1,600 feet west of Runway 17R/35L is planned to be operational by 2004. Estimated cost of construction is $13 million. Extensions to both north/south runways, Runways 17L/35R and 17R/35L, are also planned. The estimated costs of extending the runways is $8 million each. Construction of the extension to Runway 17R/35L is expected to start in 2001 and be completed by 2014. A 1,200 foot extension to the northwest of Runway 13/31 is planned as well. Construction is stated to begin in 2003, be completed in 2005, and cost $5 million.



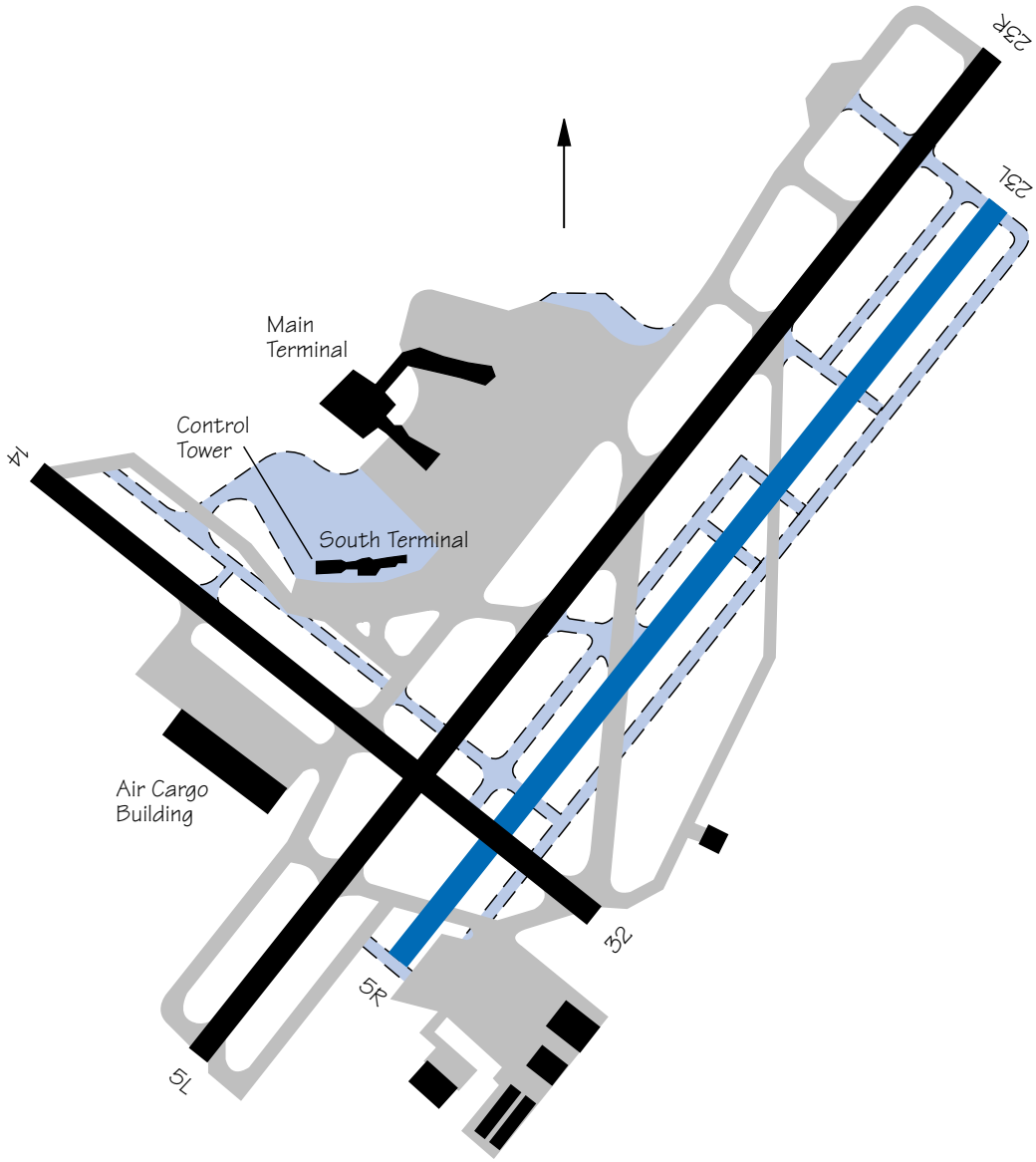
OMA — Omaha Eppley Airfield

A 1,000 foot extension of Runway 14L/32R is planned to begin construction in mid-1996. Expected operational date is mid-1997, with a cost of $9 million, including the relocation of ILS equipment.



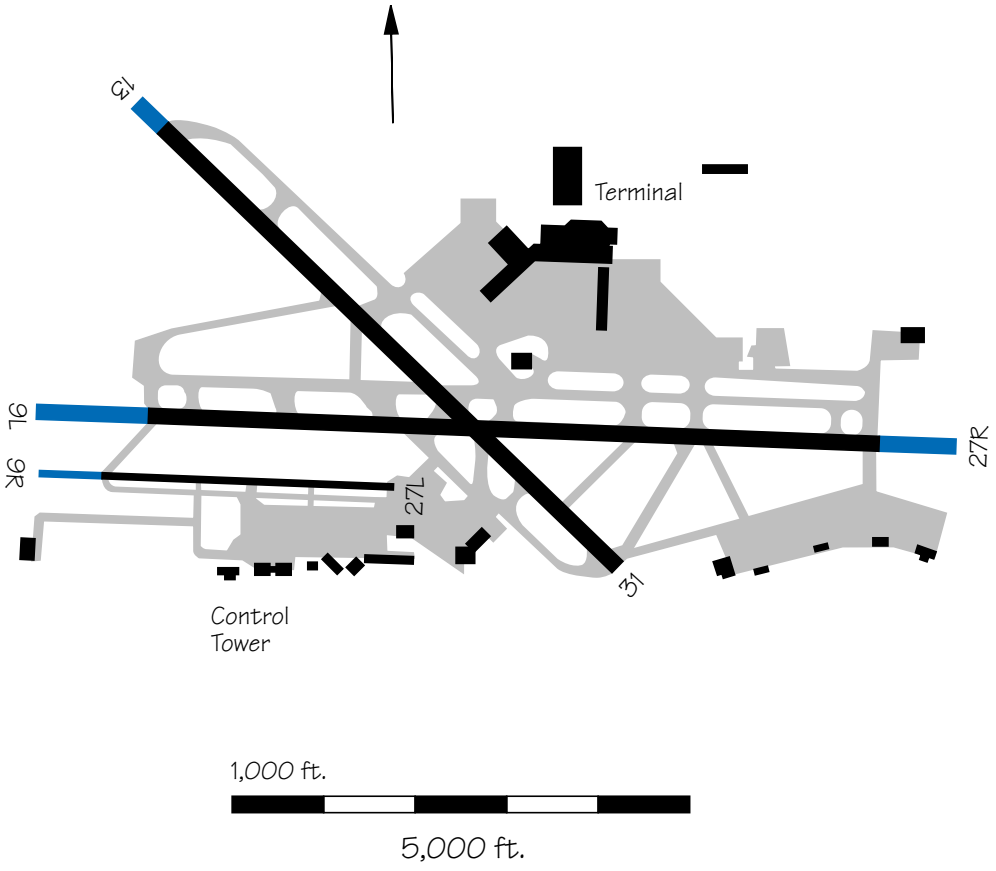
ORF — Norfolk International Airport

A new air carrier runway, Runway 5R/23L, 800 feet south of Runway 5/23 was recommended by the Eastern Region Capacity Design Team. A Master Plan Update is currently underway. The runway could be operational by 2005, at en estimated cost of $75 million, providing the airport can acquire the small amount of additional land required.



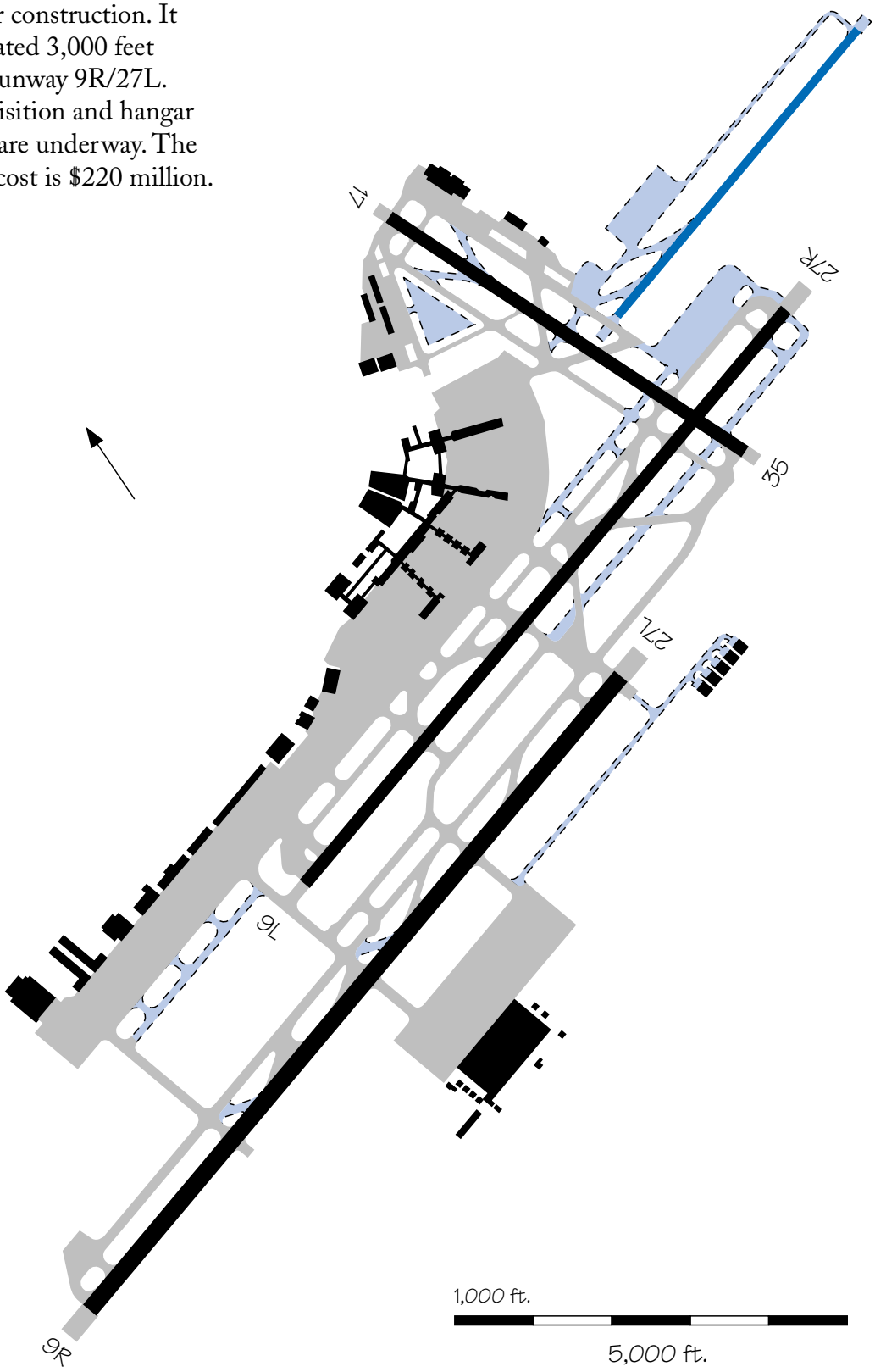
PBI — Palm Beach International Airport

Runway 9L/27R is planned to be extended 1,200 feet to the west and 811 feet to the east, for a total length of 10,000 feet. The total estimated project cost is $8.5 million. In addition, a 250 ft. northwest extension of Runway 13/31 is planned to be completed in 1999 at a cost of $1 million. Finally, a 700 foot extension of Runway 9R/27L is also being considered for completion in 1997 at a cost of $0.5 million.



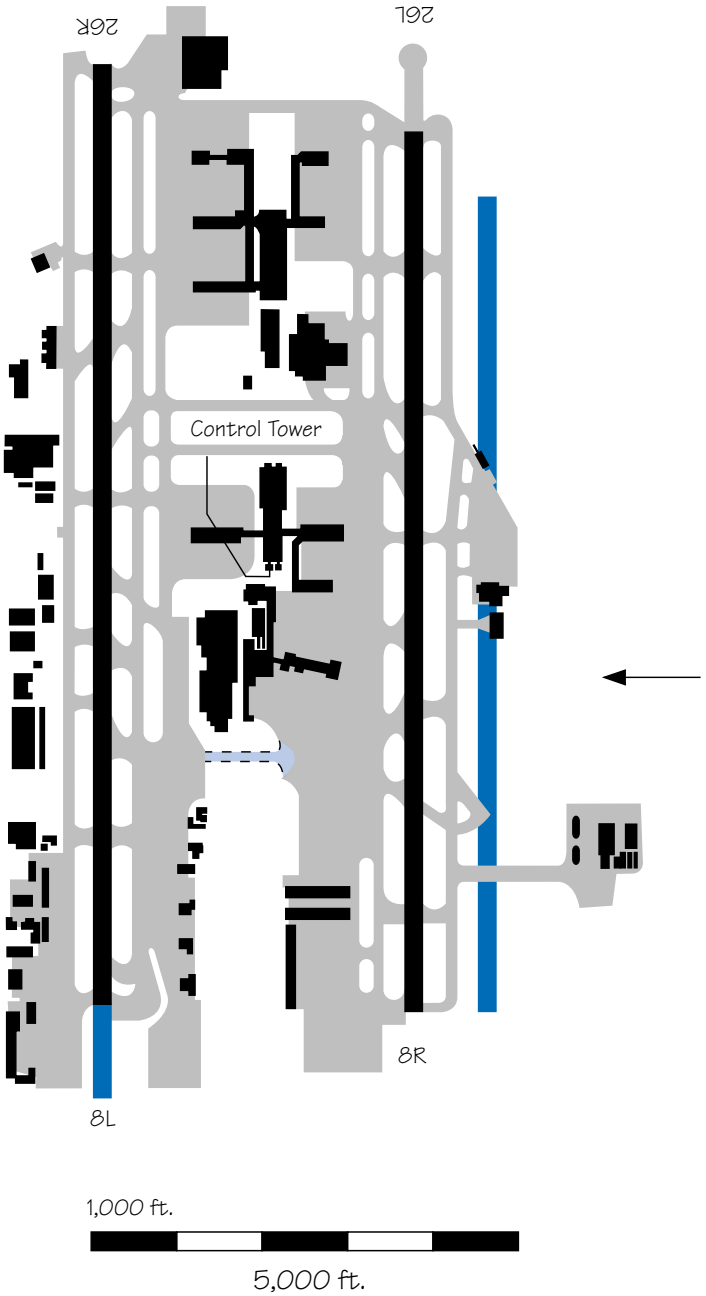
PHL — Philadelphia International Airport

A new 5,000-foot parallel commuter runway, Runway 8/26 is under construction. It will be located 3,000 feet north of Runway 9R/27L. Land acquisition and hangar relocation are underway. The estimated cost is $220 million.



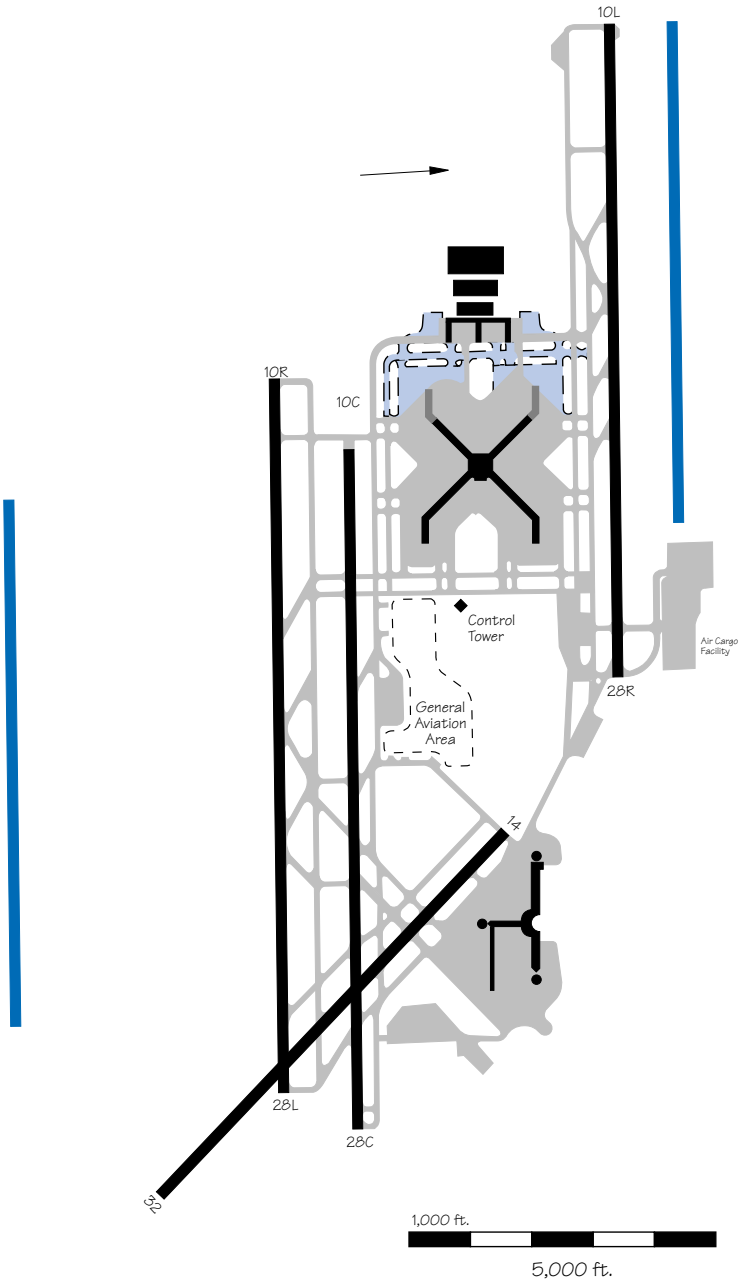
PHX — Phoenix Sky Harbor International Airport

A new 9,500-foot third parallel runway, Runway 7/25, is proposed 800 feet south of Runway 8R/26L. The estimated cost of construction is $88 million. The estimated operational date for the first 7,800 feet of Runway 7/25 is 1997; the remaining 1,700 feet of the runway is not scheduled at this time. In addition, an extension of Runway 8L/26R is under consideration. The estimated cost of construction is $7.0.



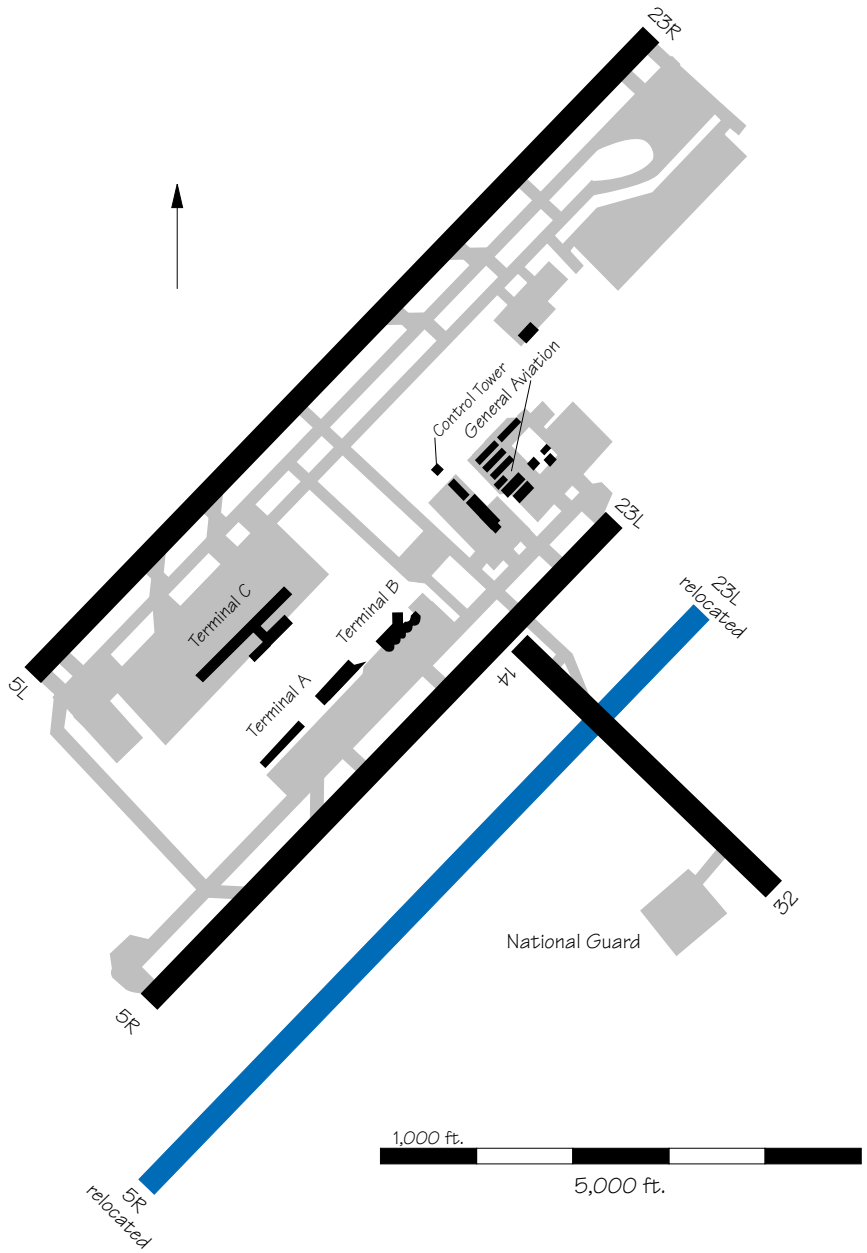
PIT — Greater Pittsburgh International Airport

A recently completed Master Plan has recommended that at least two new runways will be needed within a twenty year planning period to accommodate projected Baseline (normal growth) forecast demands and achieve acceptable aircraft delay times and associated delay costs. Construction of the two east/west runways include a northern parallel and a southern parallel, with the latter as the preferred first-build runway. The southern parallel will be located approximately 4,300 feet south of existing Runway 10R/28L and should be operational by the time the airport reaches 495,000 annual aircraft operations. The northern parallel runway will be located 1,000 feet north of existing Runway 10L/28R and should be operational by the time the airport reaches 522,000 annual aircraft operations.



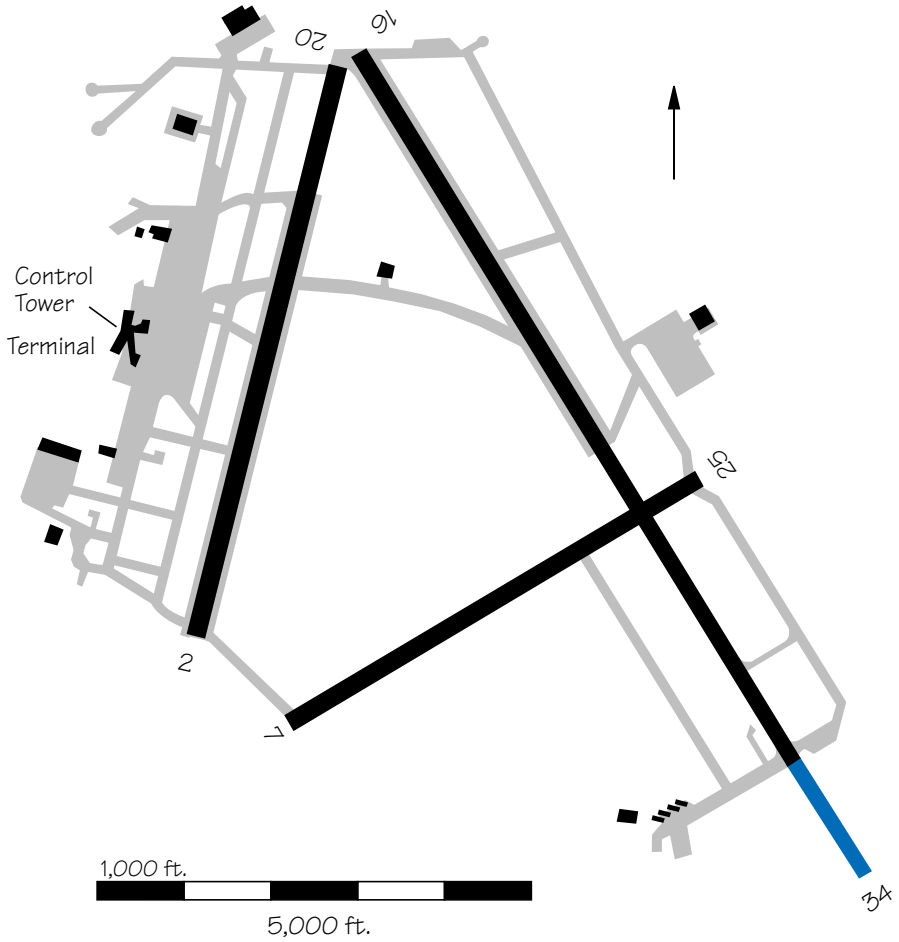
RDU — Raleigh-Durham International Airport

The relocation of Runway 5R/23L and its associated taxiways is being considered. The new runway will be parallel to and approximately 450-1,200 feet southeast of existing Runway 5R/23L. It will be a 9,000-foot long air carrier runway. It is planned to be operational bt 2005.



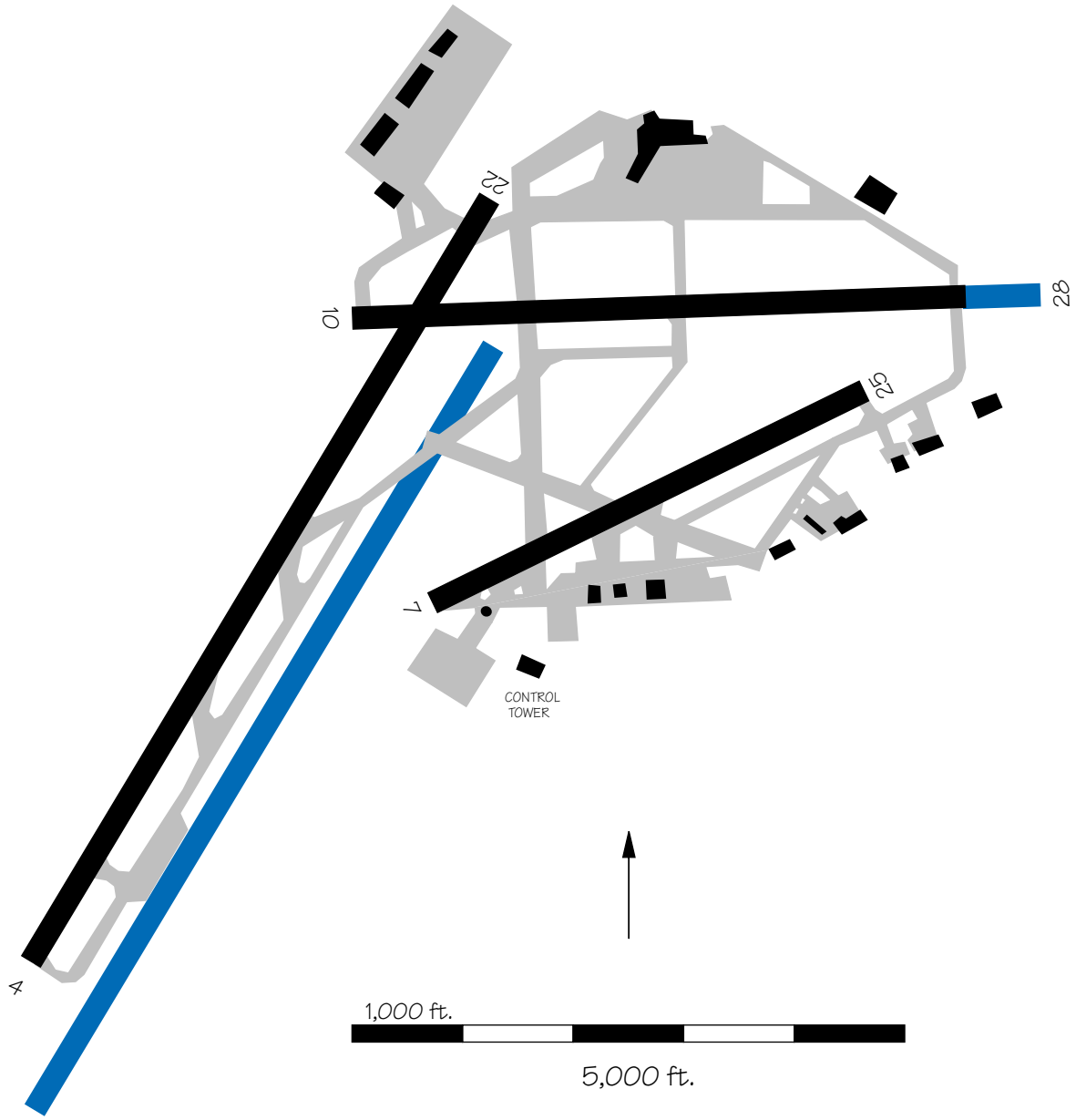
RIC — Richmond International Airport

An extension of Runway 16/34 is planned for an operational date of early 1997. The estimated cost of construction is $45 million.



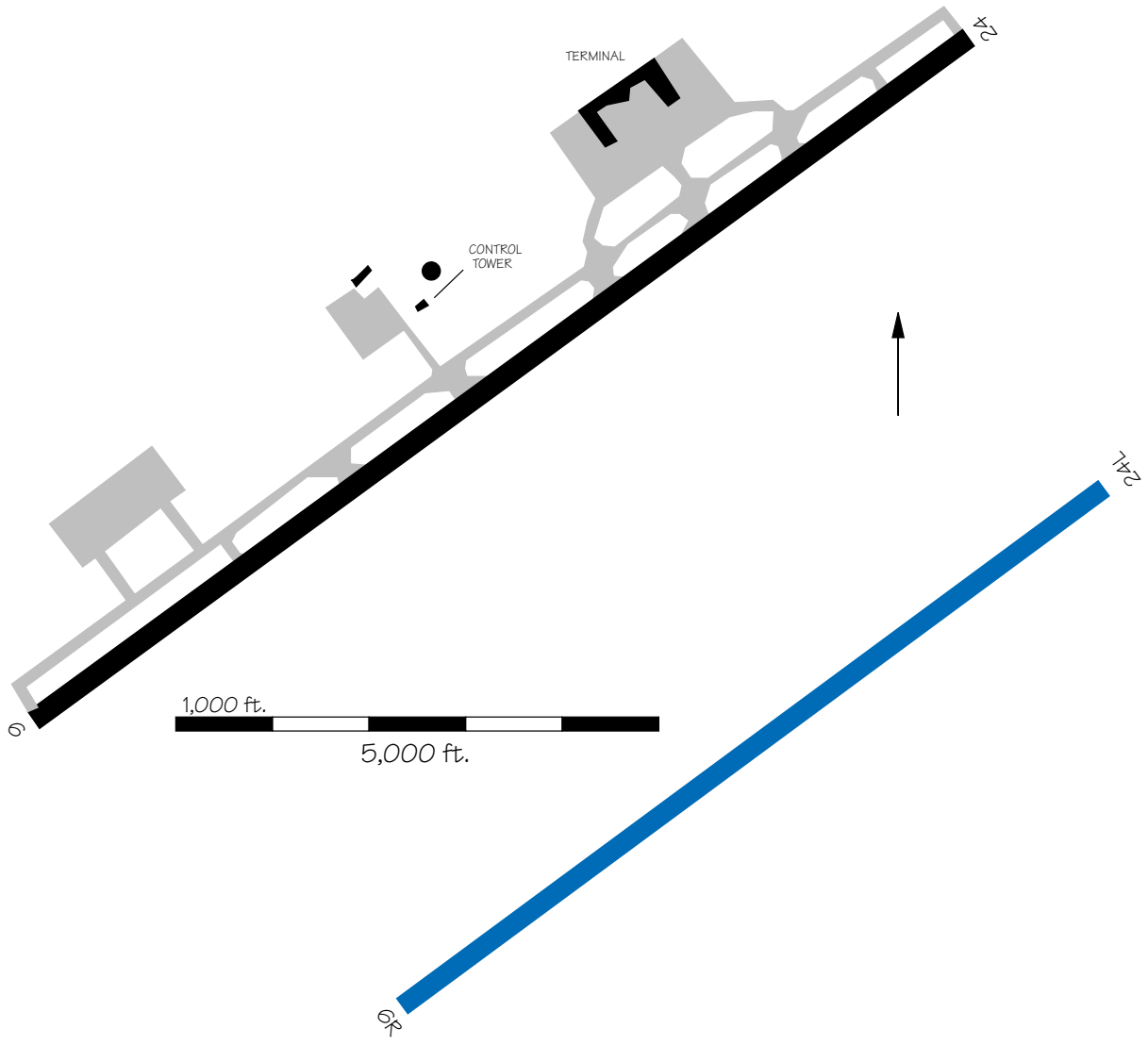
ROC — Greater Rochester International Airport

Construction of an extension to Runway 10/28 is being considered. The estimated cost of construction is $3.2 million. An extension to Runway 4/22 is also being considered, and is expected to cost $4 million. Construction of a new parallel Runway 4R/22L 700 feet southeast of Runway 4/22 is estimated to cost $10 million. These runway improvements are anticipated post 2000. Environmental assessments have not yet been started for these projects.



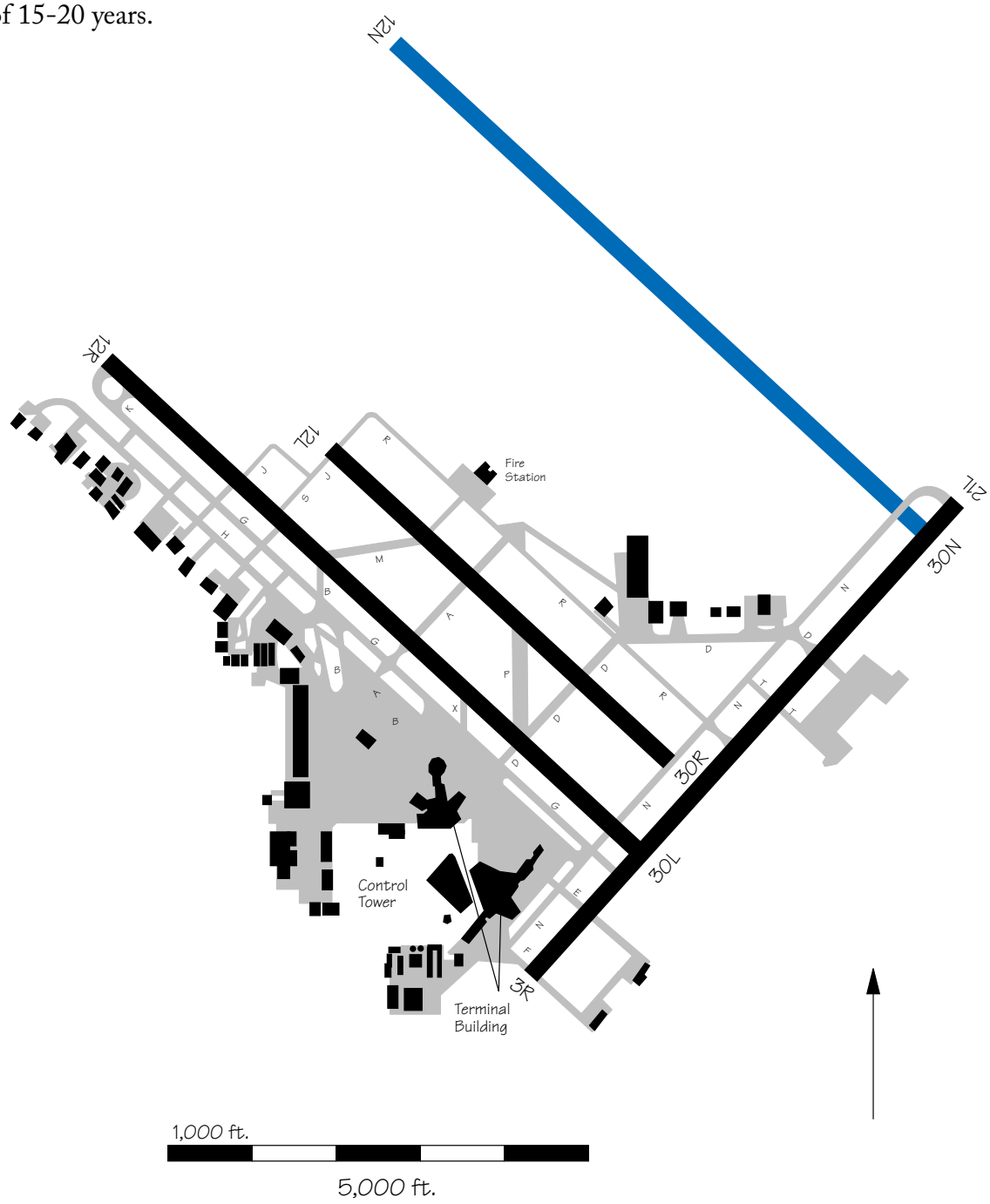
RSW — Fort Myers Southwest Florida Regional Airport

Planning has begun for a new 9,100 foot parallel runway, Runway 6R/24L, 4,300 feet or more southeast of Runway 6/24. Construction is expected to begin in 1998. The new runway should be operational by 2000. The estimated cost of the project is $87 million. This new runway will support independent parallel operations.



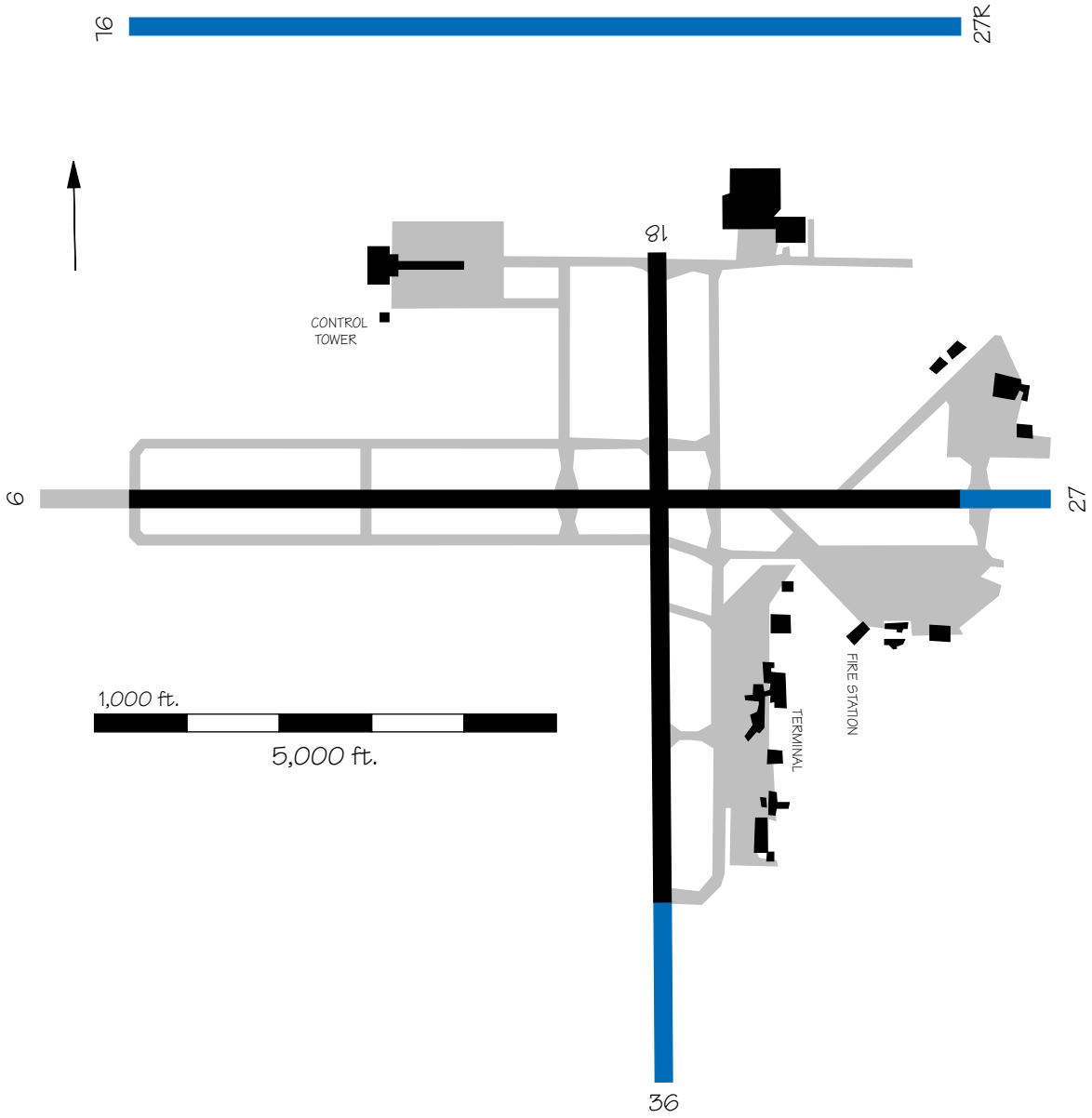
SAT — San Antonio International Airport

Reconstruction and extension of Runway 12L/30R for air carrier operations is being planned for beyond 2000, as demand warrants. A third parallel runway, Runway 12N/30N, is in the long term planning as well, with a time frame of 15-20 years.



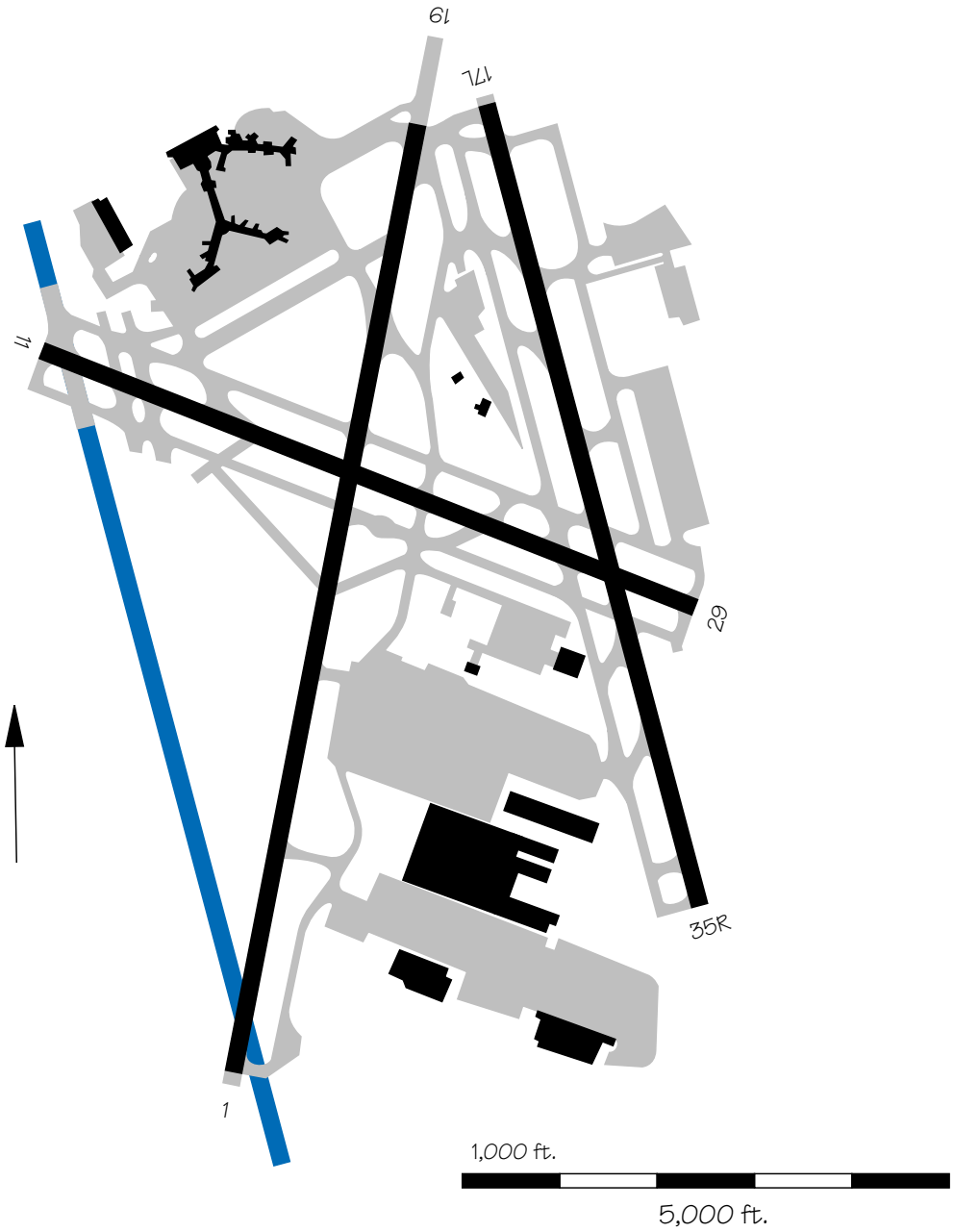
SAV — Savannah International Airport

Three runway construction projects are being planned. A 2,000-foot extension to Runway 18/36 is planned for the year 2000, at a cost of $3.9 million. A new 9,000-foot parallel runway, Runway 9L/27R, approximately 5,000 feet north of Runway 9/27, is expected to be constructed in 2005, with an estimated cost of $15.2 million. Also, an extension to the existing Runway 9/27 is planned to begin in 1999, at a cost of $5 million.



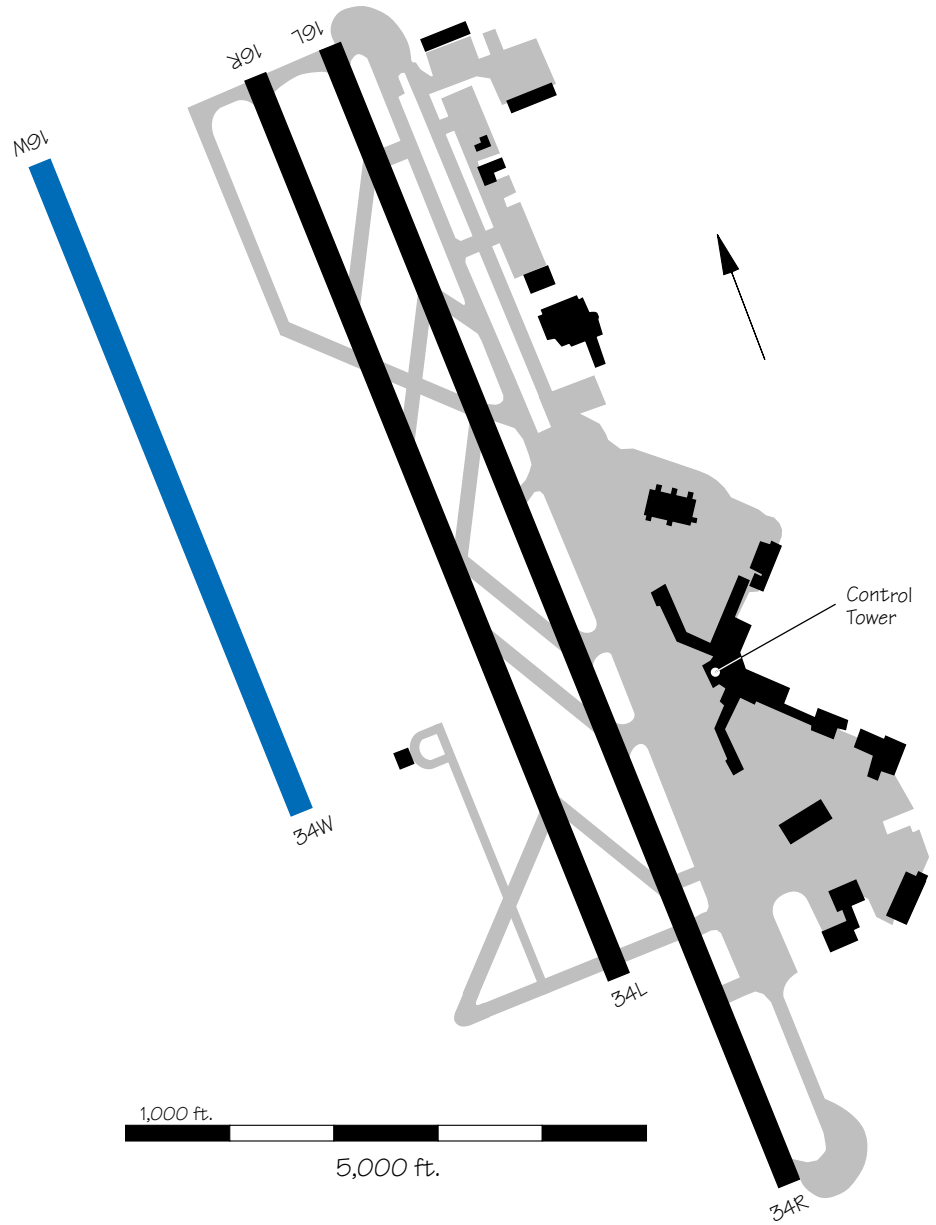
SDF — Louisville Standiford Field

Construction is underway for two new parallel runways, 4,950 feet apart. They will be numbered Runways 17R/35L and 17L/35R and will be 10,000 and 8,580 feet long, respectively. They will replace Runway 1/19, which will be closed. The estimated cost of construction is $59 million for Runway 17R/35L. Runway 17L/35R is complete, and Runway 17R/35L is expected to be completed in 1997. The two runways will permit independent parallel IFR operations.



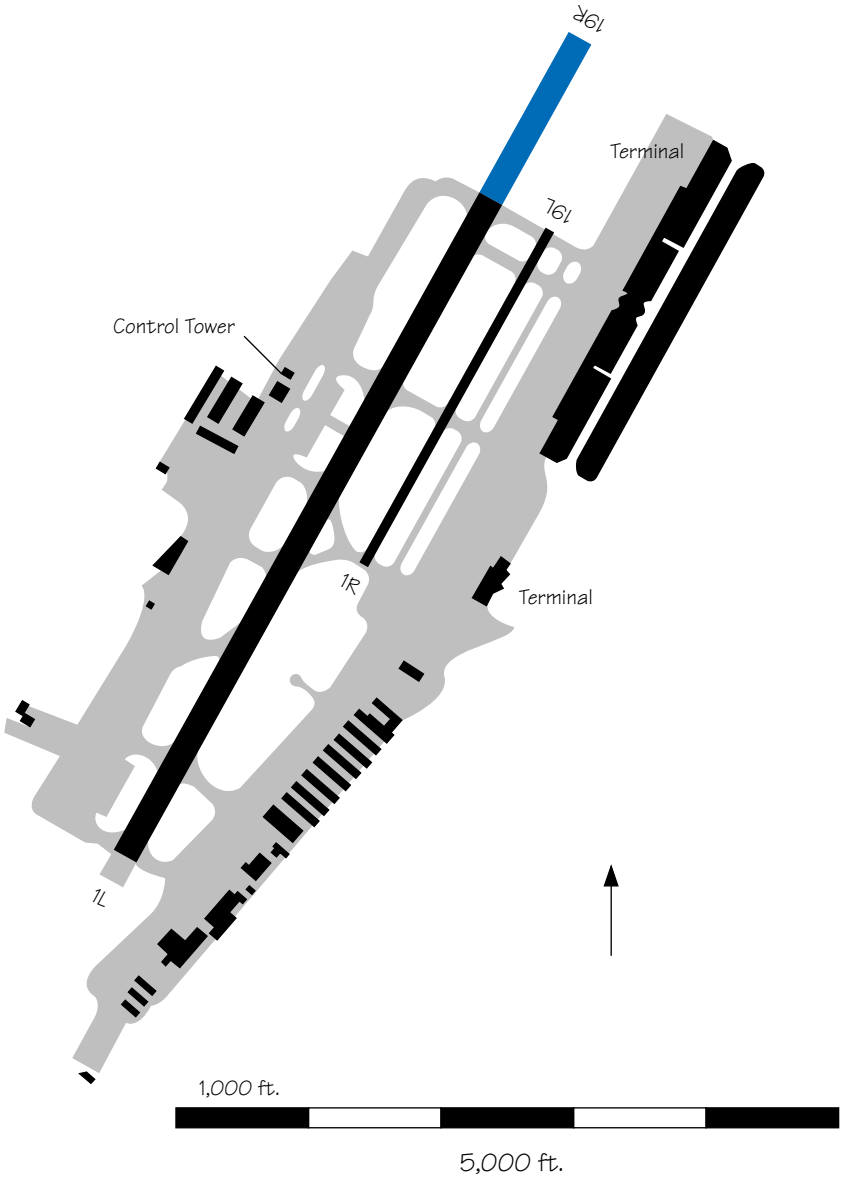
SEA — Seattle-Tacoma International Airport

Potential airport improvements include a new Runway 16W/34W, up to 8,500 feet in length, which will be located 2,500 feet from Runway 16L/34R. A decision on construction will be made in 1996, and the estimated cost of construction is $400 million.



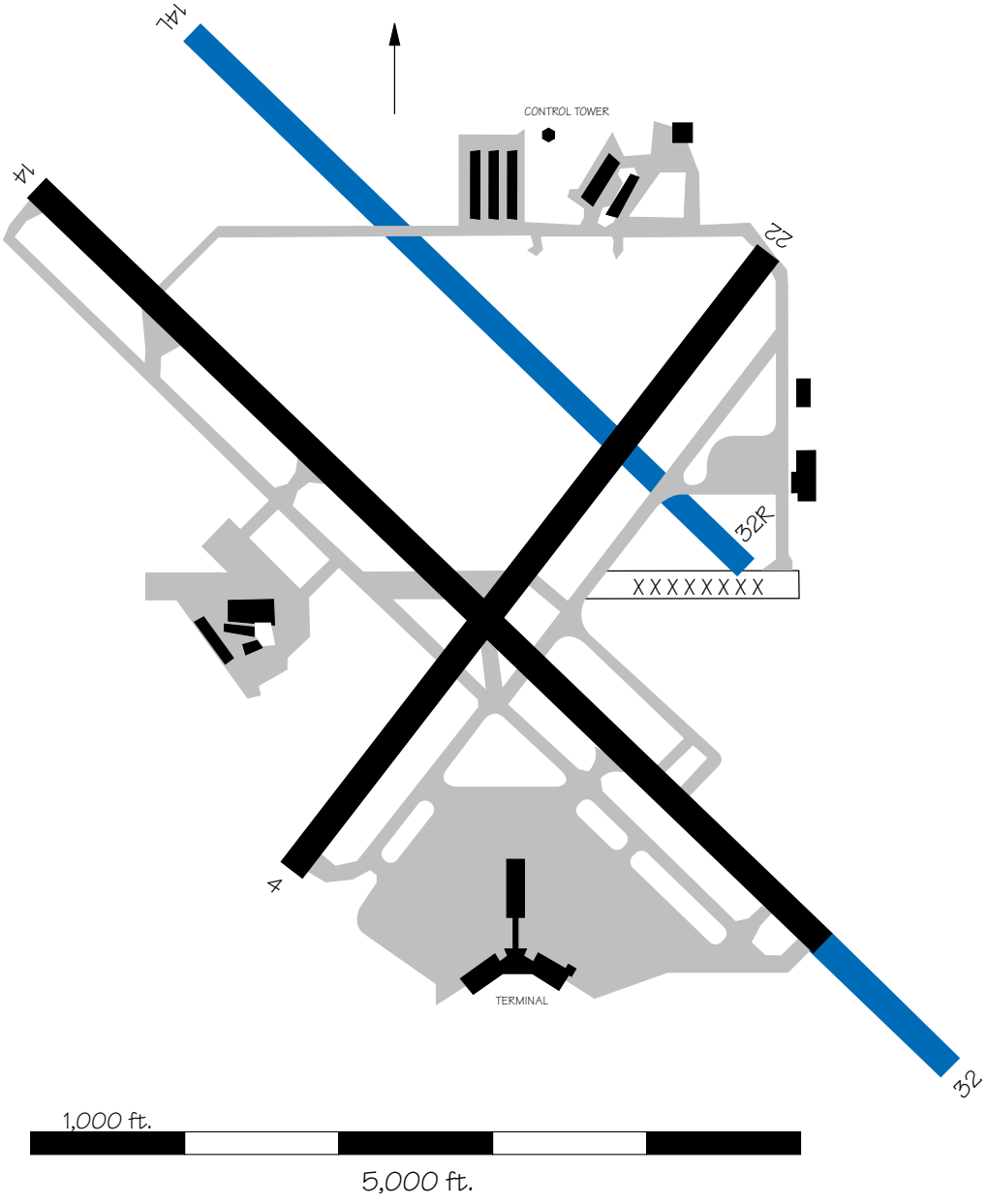
SNA — Santa Ana/John Wayne Airport - Orange County

An extension of Runway 1L/19R is under consideration.



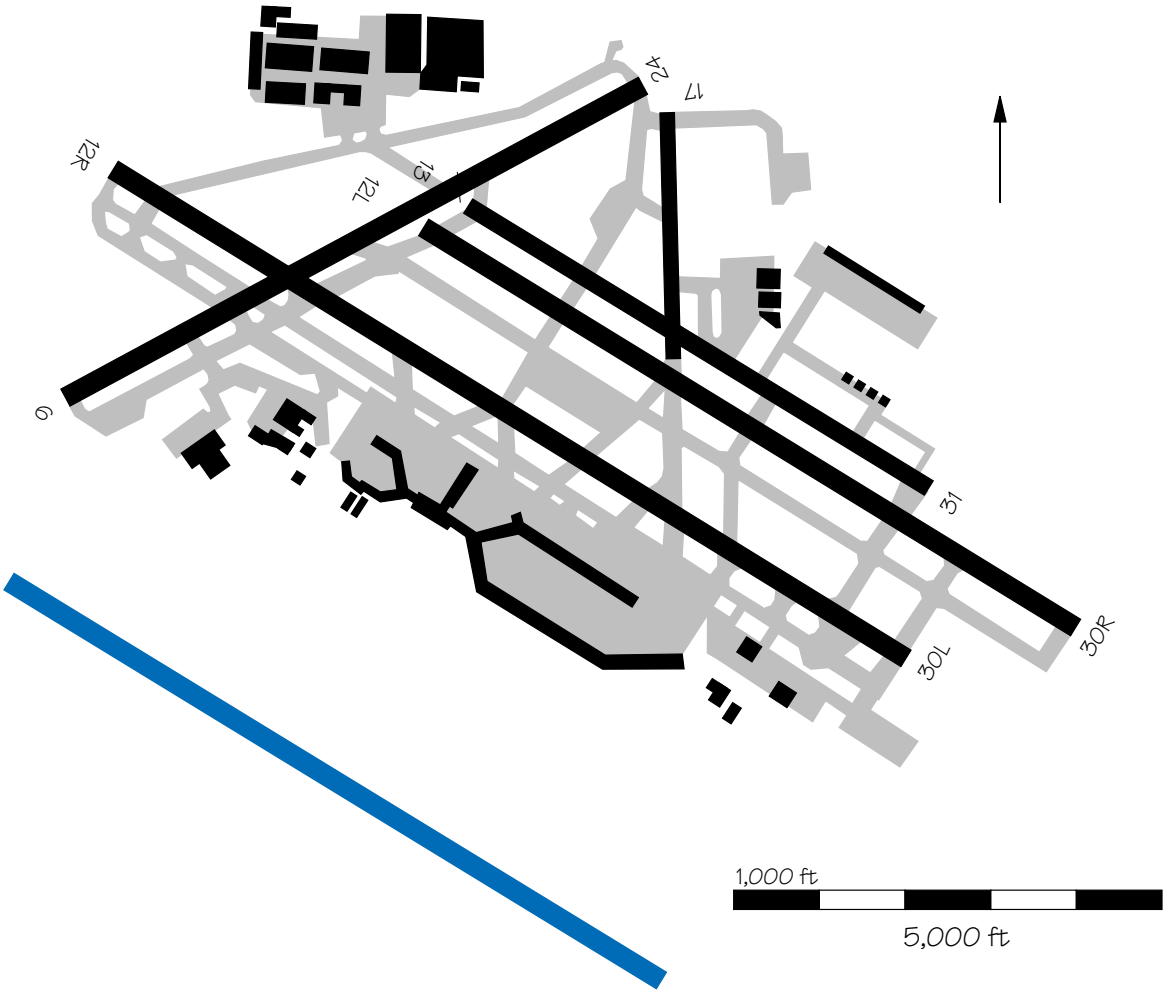
SRQ — Sarasota Bradenton Airport

A new parallel Runway 14L/32R 1,230 feet northwest of Runway 14/32 is being planned at an estimated cost of $10 million. It is expected to be operational beyond 2000. In addition, an extension of the existing Runway 14/32 is planned at a cost of $5.1 million. It is expected to be complete in 1998.



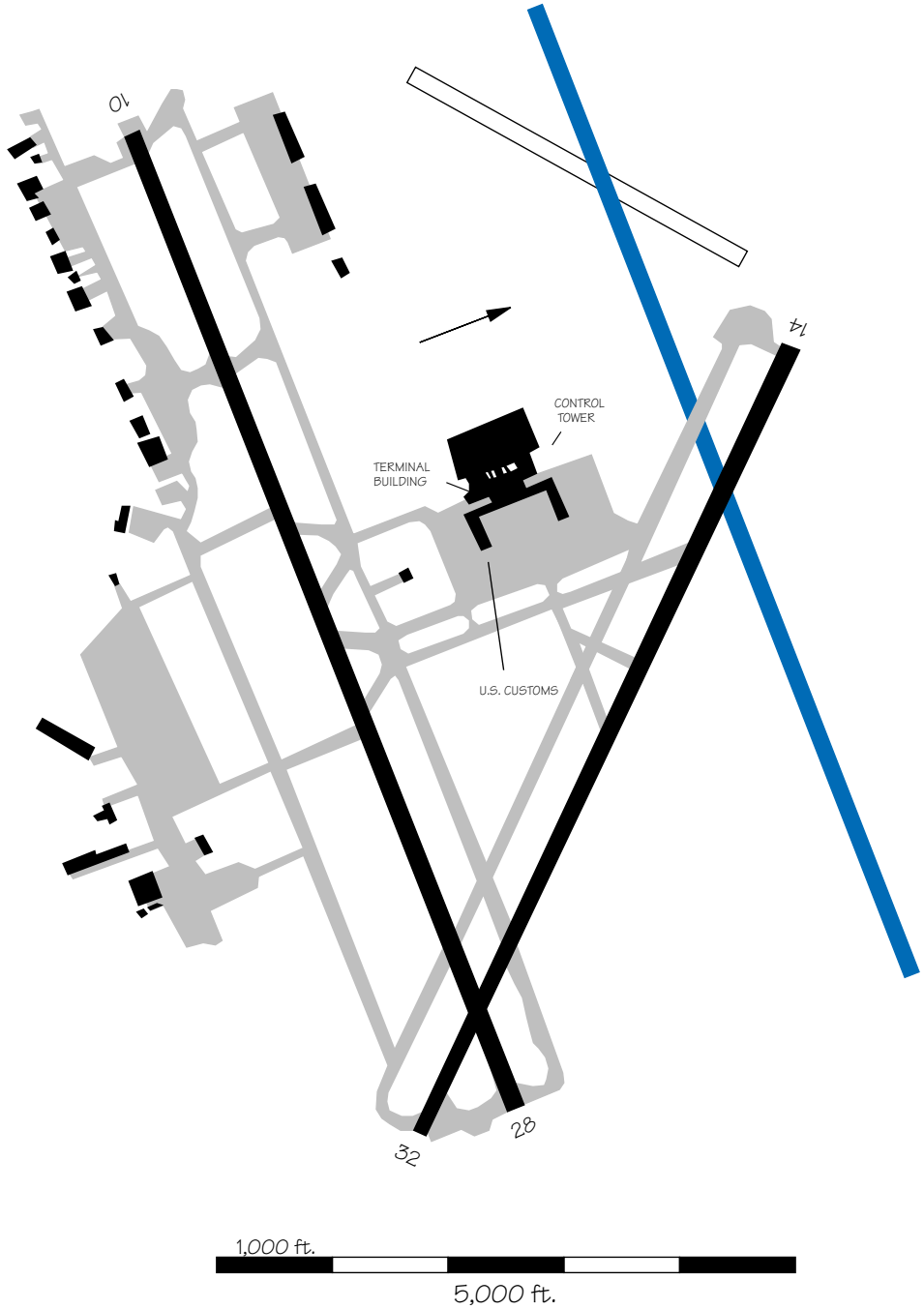
STL — Lambert St. Louis International Airport

A new parallel Runway 12R/30L in several configurations had been recommended by the St. Louis Airport Capacity Design Team. A Master Plan Update is underway, and the entire airport layout may change as a result. The new plan will probably call for three parallel runways, with at least two supporting independent IFR operations. An EIS is also underway. The Master Plan Update and the EIS are anticipated to be completed in 1996. A new Runway 14R/32L is planned as the first phase of the airport expansion. Construction of the runway could occur beginning in 1997, subject to environmental approval.



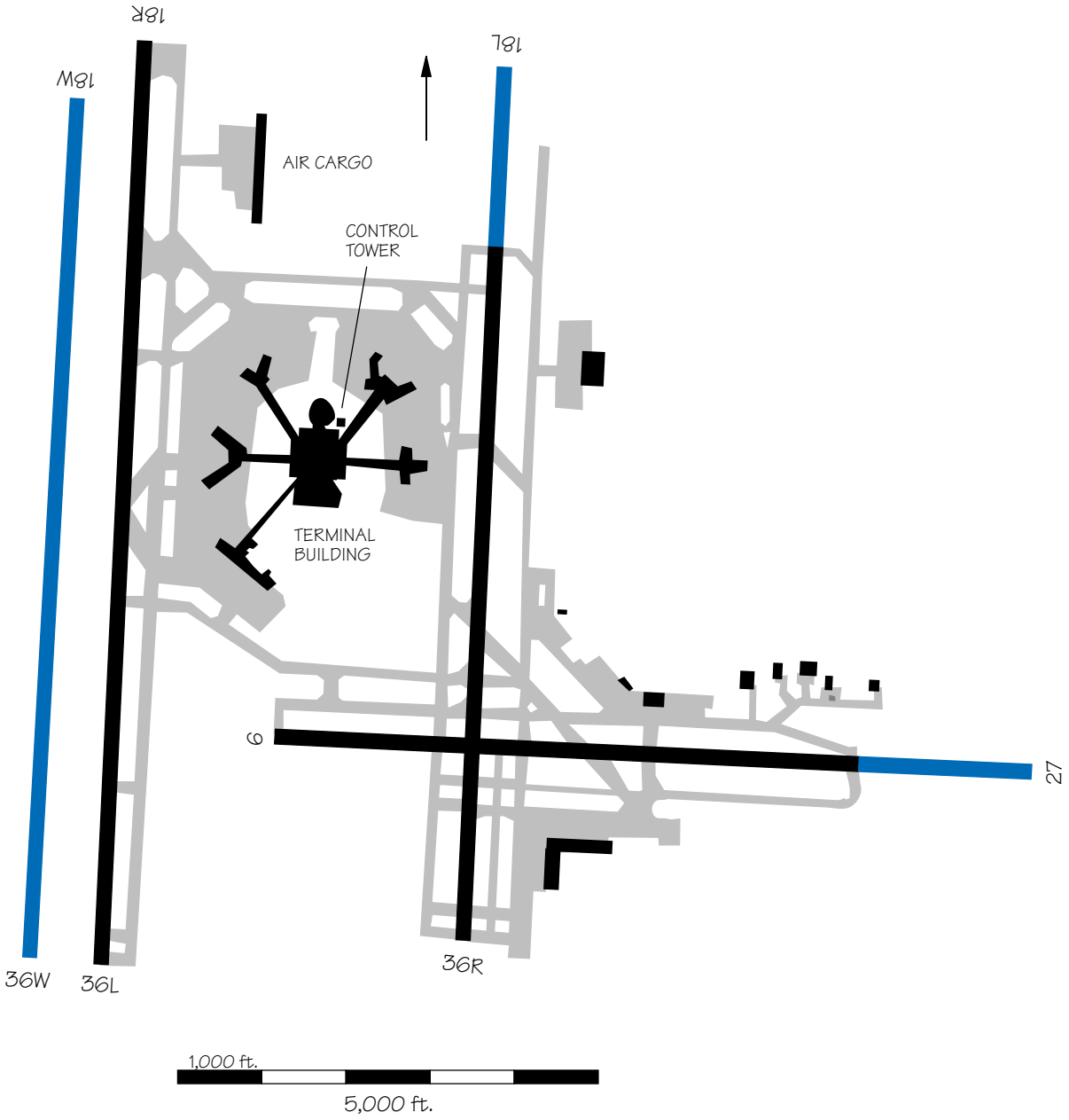
SYR — Syracuse Hancock International Airport

A new parallel Runway 10L/28R, 9,000 feet long and separated from the existing Runway 10/28 by 3,400 feet is being considered. It would provide independent parallel IFR operations, doubling hourly IFR arrival capacity. The expected operational date is 2000. The cost of construction is estimated to be $55 million for the first phase of the new runway, which would be 7,500 feet long, including a parallel taxiway and connections to the ramp. The final length of the runway will be 9,000 feet.



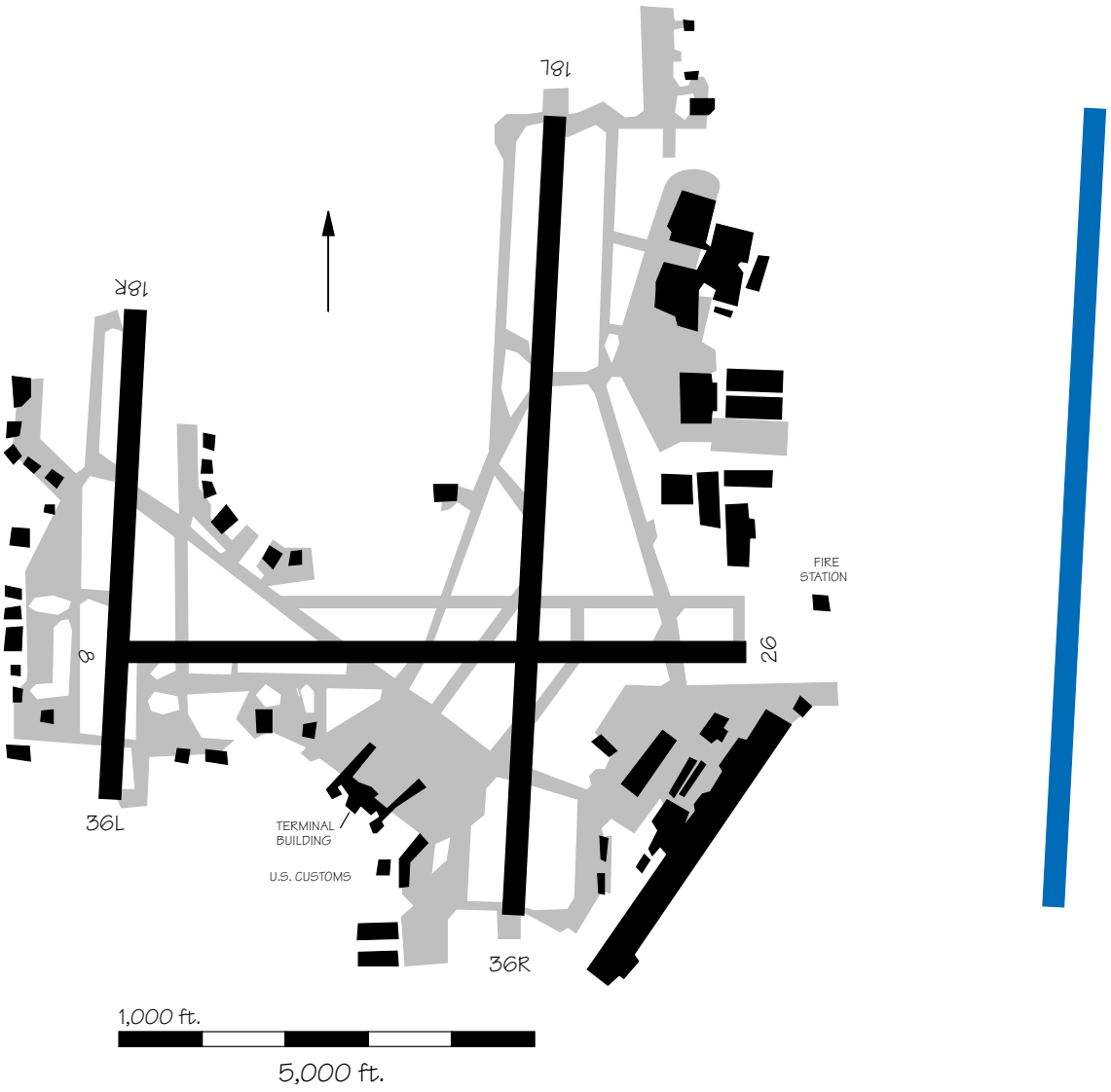
TPA — Tampa International Airport

A third parallel Runway 18W/36W 9,650 feet long and 700 feet west of Runway 18R/36L is being considered. Construction is expected to be completed by 2000, and the estimated cost of construction is $55 million. An extension of Runway 18L is also being considered for the time frame beyond 2005, and reconstruction and extension of Runway 27, for the time frame beyond 2010.



TUL — Tulsa International Airport

A new parallel runway, Runway 18L/36R, located 6,400 feet east of the present 18L/36R and 9,600 feet long, is being considered. The new runway would permit IFR triple independent approaches, if approved, to Runways 18L, 18C, and 18R.



TUS — Tucson International Airport

An additional parallel air carrier runway, Runway 11R/29L, has been proposed. Upon completion of the new runway, the current Runway 11R/29L, a general aviation runway, will revert to its original taxiway status. It is not anticipated that the sponsor will proceed before 1998. Current plans call for construction to start in 2003 to be operational in 2005. The cost of construction is estimated to be $30 million.